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P R E F A C E

IN 1915 a Geographical Section was formed in the Naval Intelligence Division of the Admiralty to write Geographical Handbooks on various parts of the world. The purpose of these handbooks was to supply, by scientific research and skilled arrangement, material for the discussion of naval, military, and political problems, as distinct from the examination of the problems themselves. Many distinguished collaborators assisted in their production, and by the end of 1918 upwards of fifty volumes had been produced in Handbook and Manual form, as well as numerous short-term geographical reports. The demand for these books increased rapidly with each new issue, and they acquired a high reputation for accuracy and impartiality. They are now to be found in Service Establishments and Embassies throughout the world, and in the early years after the last war were much used by the League of Nations.

The old Handbooks have been extensively used in the present war, and experience has disclosed both their value and their limitations. On the one hand they have proved, beyond all question, how greatly the work of the fighting services and of Government Departments is facilitated if countries of strategic or political importance are covered by handbooks which deal, in a convenient and easily digested form, with their geography, ethnology, administration, and resources. On the other hand, it has become apparent that something more is needed to meet present-day requirements. The old series does not cover many of the countries closely affected by the present war (e.g. Germany, France, Poland, Spain, Portugal, to name only a few); its books are somewhat uneven in quality, and they are inadequately equipped with maps, diagrams, and photographic illustrations.

The present series of Handbooks, while owing its inspiration largely to the former series, is in no sense an attempt to revise or re-edit that series. It is an entirely new set of books, produced in the Naval Intelligence Division by trained geographers drawn largely from the Universities, and working at sub-centres established at Oxford and Cambridge. The books follow, in general, a uniform scheme, though minor modifications will be found in particular cases; and they are illustrated by numerous maps and photographs.

The purpose of the books is primarily naval. They are designed first to provide, for the use of Commanding Officers, information in a

comprehensive and convenient form about countries which they may be called upon to visit, not only in war but in peace-time; secondly, to maintain the high standard of education in the Navy and, by supplying officers with material for lectures to naval personnel ashore and afloat, to ensure for all ranks that visits to a new country shall be both interesting and profitable.

Their contents are, however, by no means confined to matters of purely naval interest. For many purposes (e.g. history, administration, resources, communications, etc.) countries must necessarily be treated as a whole, and no attempt is made to limit their treatment exclusively to coastal zones. It is hoped therefore that the Army, the Royal Air Force and other Government Departments (many of whom have given great assistance in the production of the series) will find these Handbooks even more valuable than their predecessors proved to be both during and after the last war.

J. H. GODFREY,
Director of Naval Intelligence
1942

The foregoing preface has appeared from the beginning of this series of Geographical Handbooks. It describes so effectively their origin and purpose that I have decided to retain it in its original form.

This volume has been prepared for the Naval Intelligence Division at the Cambridge sub-centre (General Editor, Dr. H. C. Darby). It has been largely written by Mr. J. S. Furnivall with contributions from Mr. S. H. Beaver, Dr. P. W. Richards, Mr. J. C. Stuttard, and Mr. T. G. Tutin. The maps and diagrams have been drawn by Mr. A. O. Cole, Miss H. Collins, Miss K. S. A. Froggatt, Miss F. Hands and Miss J. D. I. Tyson. The volume has been edited by Mr. J. C. Stuttard and Mr. T. G. Tutin.

E. G. N. RUSHBROOKE,
Director of Naval Intelligence

November 1944

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Geology and Physical features; Sumatra; Islands Adjacent to Sumatra; Java and Madoera; Borneo; Celebes; The Lesser Soenda Islands; The Moluccas; Dutch New Guinea; Climate; Soils; Vegetation; Medical Services and Health Conditions.

VOLUME II.

Peoples; History; Government, Administration and Law; Growth and Distribution of Population; Agriculture and Fisheries; Forestry; Mining and Industry; Labour; Commerce and Finance; Ports; Communications.

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Chapter I

THE PEOPLE

Introduction: Physical Types: Languages: Peoples of Java: Peoples of Sumatra: Peoples of Borneo: Peoples of Celebes: Peoples of the Moluccas: Peoples of New Guinea: Peoples of Bali and Lombok: Peoples of the Timor Group: Education: Bibliographical Note

INTRODUCTION

The Malay Archipelago has been of world importance for many centuries as a goal of commerce, and as a market for the exchange of goods between East and West. It has attracted maritime peoples who have left their mark on the population of the islands; sometimes they have mixed with the natives, and sometimes they have founded settlements retaining a separate identity.

It is uncertain whether land bridges between the western islands and Malaya and the eastern islands and Australia still existed when modern man first spread over this region, but communication has always been possible by sea; with favourable winds even primitive native craft can traverse the whole archipelago without losing sight of land for more than a few hours. To the east and south, however, beyond New Guinea and Australia, the vast expanse of ocean presents a formidable barrier to migration.

The line of advance would ordinarily be from the mainland on the north and west towards the islands in the south and east, but tribes driven up against the ocean barrier could retrace their steps and look for sanctuary in hills or remote islands which formerly they had left behind. Thus various peoples continually moved forwards and backwards.

During the long series of migrations throughout the archipelago there was much intermarriage between the later arrivals and their predecessors and, in cultural features, a mutual give and take. The final product was a common Indonesian culture, elaborate and distinctive, which still survives but, owing to local diversity in physical and economic environment and in the accidents of history, it has crystallized out in an innumerable variety of ways. Customs have changed slowly in the past and now change far more rapidly.

Peoples who lived in trees now dwell on the ground; even the most backward tribes use metal for their weapons and wear garments of imported cloth; hunters and fishermen are taking to agriculture; the family is yielding to the village as the unit of social life, and everywhere communal ideas are breaking down under the solvent force of individualism. The present chapter deals merely with the broad racial, linguistic and cultural distinctions of the native inhabitants; the immigrant groups are discussed in Chapter v.

PHYSICAL TYPES

At every stage the successive migrations of peoples in the Netherlands Indies brought about a mixture of blood and fusion of races, with a mutual interchange of speech and culture, so that over the whole area similar elements are differently combined, and form a motley pattern in remote hills and backwoods. Attempts to unravel the racial complex have multiplied confusion by inconsistencies in terminology. There is a general agreement in distinguishing an earlier stratum of inhabitants in the region, now difficult to trace except in isolated corners, and the main bulk of the modern population, composed of elements of successive invasions superimposed on the earlier elements. None of the main groups is homogeneous.

The earliest stratum seems to have been derived from peoples possessing either Australoid or Negroid characteristics. The typical Australoid is dark-skinned, hairy, of low stature, inclined to be narrow-headed (*dolichocephalic*), has a broad flat nose and ringletted hair which is elliptic in section. The Negroid type is also marked by a dark skin and broad flat nose, but the skin is smooth and the chief distinction is the woolly hair which is flat in section and tightly curled. Some, the Negratoes, are short and rather broad-headed (*brachycephalic*); others, classed generally as Papuans, are moderately tall and ordinarily dolichocephalic. Some authorities regard the Negratoes as the first men to reach south-east Asia; others give precedence to the Australoids.

In the Malay Peninsula Negratoes are represented by the Semang, who, as the Orang Akit, stretch across into Sumatra. In Java there has been recognized a Negroid element which may be of Negrato origin, and the Kalang and Badoei have been regarded as partly of Negrato ancestry. Further east there are thought to be Negrato elements in Alor, Wetar and Timor, but in Borneo, Celebes and the Moluccas there is no evidence of the former presence of Negratoes,



Plate 1. Menangkabau girls



Plate 2. Batak man

Most of the Batak live in the Toba lake region of northern Sumatra.

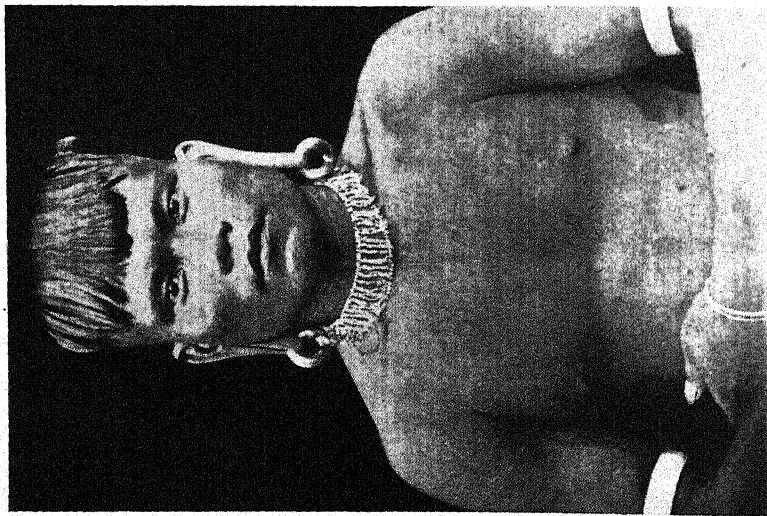


Plate 3. Bahau Dyak from central Borneo
Among the Dyak it is a common practice to distend the
ear lobes in the manner shown in the photograph.

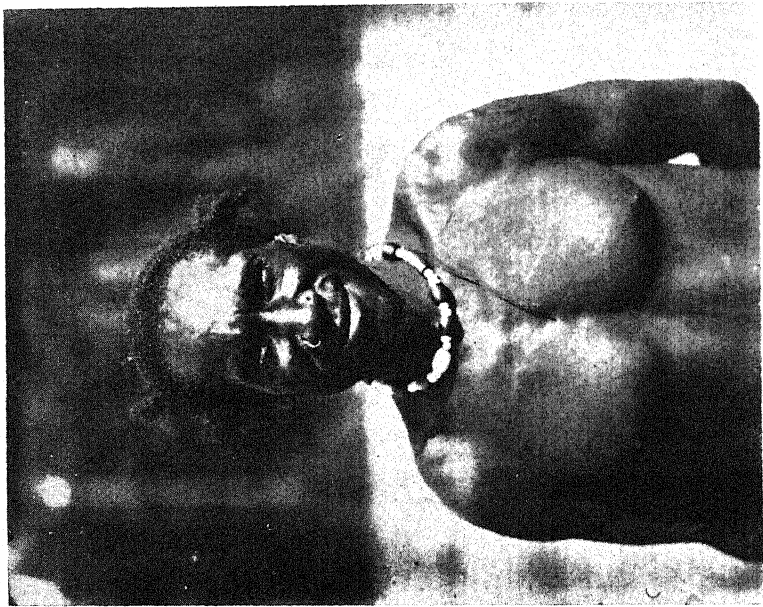


Plate 4. Papuan from Merauke, New Guinea

In New Guinea, however, Negritos are represented by the Tapiro, the Nogulla and some other peoples of the mountain chain.

Australoid characters have been recognized among the Senoi in the south of the Malay Peninsula and among the Sakai and Koeboe of Sumatra. The presence of forerunners of Australoids in Java is thought likely from a fossil skull that was found at Wadjak in Kediri. The Australoid type is not uncommon among the Bodha of Lombok, and occurs among other culturally backward peoples in the Lesser Soenda islands eastwards to Timor. In Borneo it is represented among the Poenan, in Celebes among the Toala, and in the Moluccas among the Bonfia of Ceram. It would seem then that at one time Australoid peoples were distributed over the whole archipelago and Australoid traits can be found almost everywhere, even among the highly civilized Javanese.

Papuan elements have not been recognized in the archipelago, except in the eastern Moluccas and the Lesser Soenda islands. A Papuan strain is clearly apparent in Lombok and increases as one goes further east. The Papuans of New Guinea are of Negroid stock but are distinguished from the Negritos by moderately tall stature and a hairy face and body (Plate 4).

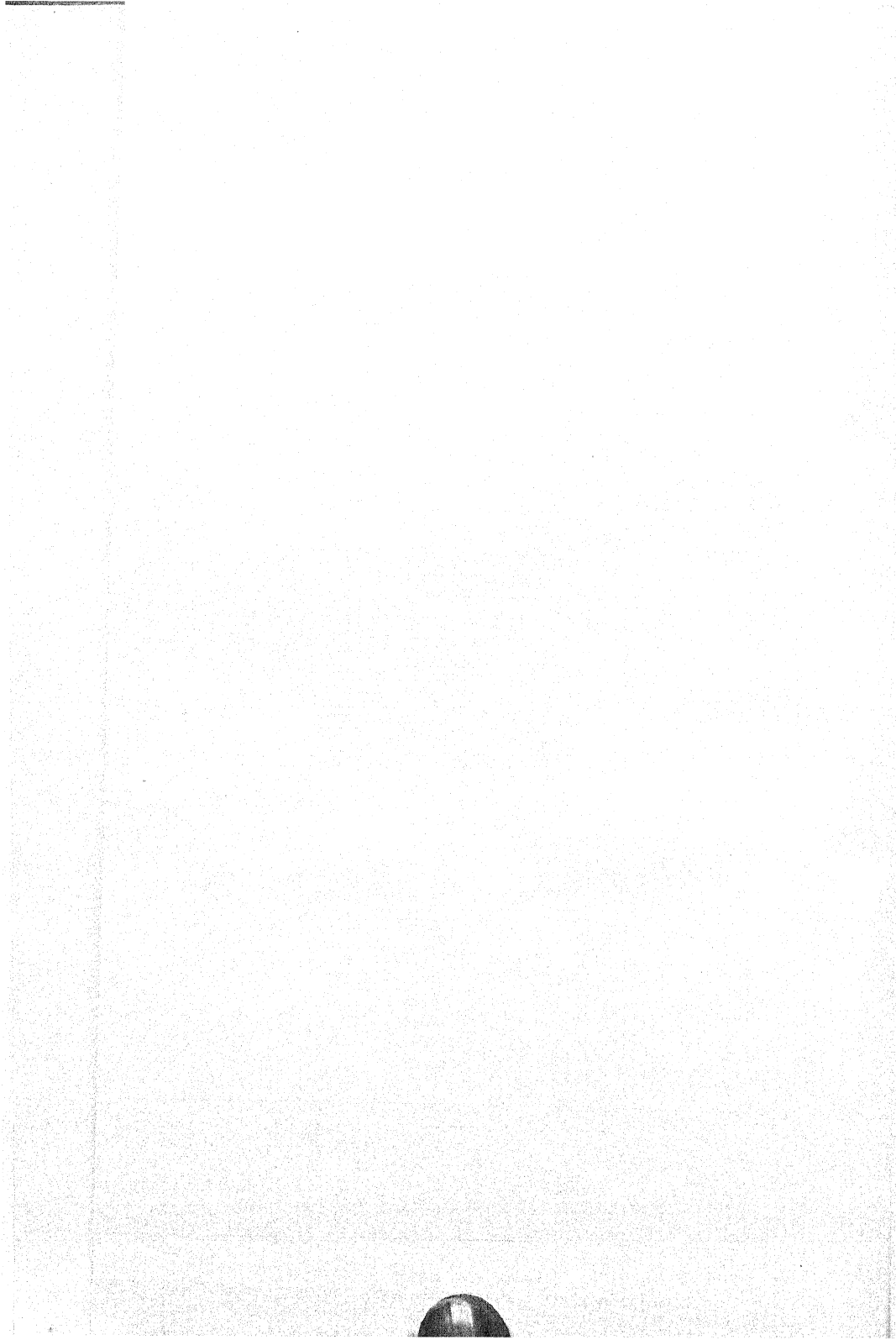
Speaking generally the bulk of the present population derives from later immigrants who came in successive waves. It is generally agreed that there are two distinct constituents; the earlier one, with a brown skin, dolichocephalic, and with frizzly or wavy hair which is elliptic in section; the later one, with characteristic Mongoloid features, a skin tinged with yellow, brachycephalic, and with straight hair which is round in section.

The general agreement about racial composition is disguised by a clash in nomenclature of the peoples of the areas concerned. Certain peoples in Malaya and Sumatra have been known as Malays for centuries, and their language as Malay. These Malays were traders who settled in various ports, where the local people gradually adopted the language and all the people who spoke the Malay language came to be termed Malays. As the early Europeans came chiefly into contact with Malay-speaking peoples, the lands which these frequented came to be known as the Malay Peninsula and archipelago and the term 'Malay' gained a further extension to cover all the inhabitants of this region. Thus it had three connotations: the true Malays; the peoples who spoke the Malay language; and the peoples who lived in the Malayan region. About 1881 an attempt was made to clear up this confusion by applying the term Indonesia to the whole

Malayan archipelago, and this new usage found general acceptance when adopted by the German ethnographer Adolph Bastian in 1884. The inhabitants of this region then came to be known as Indonesians. But over the great part of Indonesia there was much in common between most of the languages, which were therefore grouped together as Indonesian, with a corresponding tendency to restrict the term as a racial name to those inhabitants of Indonesia who spoke an Indonesian language. Subsequently the connotation was extended to cover all the peoples from Formosa to Madagascar who spoke a similar language or in other ways showed an affinity with the more important peoples of Indonesia. One result of this process was that 'Indonesian' had no more exact significance than 'Malay'. Many writers use the term Malay and Indonesian as synonymous and, when necessary, distinguish the earlier dolichocephalic element as Ur-Malay, Proto-Malay or Pre-Malay. This seems to be the usual Dutch practice. Other writers confine the term Indonesian to the earlier dolichocephalic element, which they also term Pre-Malay, and reserve the term Malay for the Mongoloid element, distinguishing the earlier Mongoloid immigrants as Proto-Malay or Pure-Malay. Any reference to race, language or culture as Indonesian or Malay must therefore be read with caution. Of recent years it has become the practice to class the earlier dolichocephalic peoples as *Nesiot* (of Caucasoid stock), and the brachycephalic straight-haired peoples as *Pareoan* (of Mongoloid stock); this leaves Indonesian as a purely linguistic term for a group of related languages, whether spoken by Malays or others.

Nesiot characters have been recognized among many peoples in Sumatra, notably the Batak and Gajo and the inhabitants of the western islands, among some or most of the many kinds of Dyak of Borneo, and in the inland peoples of Celebes, known collectively as Toradja. In Java this stock is represented by the Tenggerese, and in the Lesser Soenda islands by the Sasak and Soembawanese (Plates 3, 6). Nesiot characters are shared by some peoples of continental India.

There is general agreement that the Mongoloid peoples came from eastern Asia, mostly by way of Malaya, and some by an eastern route through the Philippines. All the more advanced peoples are mainly Mongoloid. The chief peoples are: the Malays of the east coast, the Menangkabau and the Atjeher in Sumatra, the Soendanese, Javanese and Madoerese in Java, the Balinese and the coastal peoples of Borneo and Celebes (Plates 1, 2, 5).



LANGUAGES

As the various peoples have migrated to and fro between the mainland and the islands, there has been a commingling not only of blood but also of cultural elements. This is apparent in their speech. There are two main types of language. The Indonesian languages extend as far west as Madagascar and have affinities with the languages of Polynesia. They have been grouped together as Malayo-Polynesian, but in 1899 the philologist Father W. Schmidt, of Vienna, coined the term Austronesian to comprise the Indonesian languages and also the whole Oceanic family including both the Polynesian and Melanesian languages. At that time little was known of the speech of the Semang, Sakai and other primitive peoples. But in 1906 Father Schmidt in his work *Die Mon-Khmer Völker* demonstrated that these, together with Nicobari and the Munda languages of India, were closely allied with the Mon-Khmer group, and he gave them all the common name of Austro-Asiatic. He also showed that there is a connection between the Austro-Asiatic and Austronesian groups and classified them together as Austric (Fig. 1).

Distributed among the Austronesian languages, but sharply different, are other languages spoken mainly in the interior of New Guinea, and therefore called Papuan. In the Netherlands Indies the languages of northern Halmahera, Ternate and Tidore belong to this group; in the south of Halmahera and on the coasts of New Guinea, the languages, although containing Papuan elements, are classed under the Melanesian family of the Austronesian group. Elsewhere in the archipelago Indonesian languages alone are found, and even the primitive peoples, who on the mainland retain their Austro-Asiatic speech, have abandoned it for some Indonesian language borrowed from their neighbours. Thus over practically the whole area there is a fundamental unity of language. But this is concealed by a many-coloured pattern of local speech. In all the larger islands and in many of the smaller, each people has its own language, and over the archipelago as a whole some two hundred distinct languages have been recognized. They can be divided schematically as follows:

- A. Austro-Asiatic (South-east Asiatic)
 - Malaccan group
- B. Austronesian
 - (i) Indonesian
 - 1. Sumatra group with 15 main languages
 - 2. Java group with 3 main languages
 - 3. Borneo group with 5 main languages

4. Bali-Sasak with 3 main languages
 5. Gorontalo with 4 main languages
 6. Tomini
 7. Toradja group with 8 main languages
 8. Loinang group with 4 main languages
 9. Boengko-Laki with 5 main languages
 10. South Celebes with 7 main languages
 11. Moena-Boetoeng with 4 main languages
 12. Bima-Soemba with 6 main languages
 13. Amboina-Timor with 22 main languages
 14. Soela-Batjan with 3 main languages
- (ii) Melanesian
 South Halmahera, New Guinea coast, etc.
- C. Papuan
 Interior of New Guinea, north Halmahera, etc.

PEOPLES OF JAVA

Javanese

Of the three chief peoples of Java the Javanese are by far the most numerous, and on other grounds also they may claim to be the most important; under both Hindu and Muslim rule they were the leading group, and they have the fullest history and most extensive literature. Their homeland lies in the eastern two-thirds of the island, with the Soendanese in the west and the Madoerese in the island of Madoera off the north-east corner. At the present time Javanese are found in considerable numbers in Soendanese territory and in the Outer Provinces; to some extent, however, they have given place to the Madoerese in the north-east of the island.

Almost without exception the Javanese profess Islam*, but their beliefs and practices are strongly tinged with the Indian creeds that prevailed for nearly a thousand years before their conversion to Islam, and still more strongly coloured by their ancient belief in spirits and magic. The mountains, woods and rivers are all inhabited by spirits and the villages are alive with ghosts. Each village has its protective spirit, and each family reveres its ancestors. The boys are circumcised at about twelve years of age and marry, according to Muslim rites, at fifteen or sixteen, though the age of marriage is tending to grow later. The girls are incised at about six years old. The women go unveiled and enjoy a notable degree of freedom; one often sees husband and wife walking side by side or hand in hand, or groups of two or three women admiring the goods in shop windows. Of late years many townswomen have taken to office work and not a few ride bicycles. Formerly they used to marry at twelve or thirteen,

* See Appendix I.

but, as with the men, the age of marriage is tending to grow later and among the official classes they often do not marry before twenty. The marriage is arranged by the parents, but the boy at least has some say in the matter. It is usual for the men to pay a bride price.

The social organization is strongly aristocratic and the people have a great regard for rank and titles. Despite the long prevalence of Hinduism the caste system has never taken root. Four grades (*standen*), however, are generally recognized. These are based on property. Those who hold rice land are in the first grade; then come those who hold garden land; next are those with house sites but no land, and the lowest class are those who have no permanent residence — 'inn-lodgers huddled together in a corner'. The village usually consists of a large complex of houses surrounded by a communal village fence and lying within a circle of communal rice lands. There may be four or five thousand inhabitants; a village with only a thousand is reckoned small, and there are not many with less than five hundred. Formerly, the typical Javanese village had much in common with the Hindu village community and, like it, was a self-contained social unit. There was an elaborate village government which, even in its simpler forms, comprised a headman, a clerk, a priest, two or three subordinate headmen and policemen, and messengers. These were paid by an allotment of village land or by customary contributions from the villagers; sometimes there were village artificers similarly paid. All the land was village land; some was allotted for the support of village officers, some was held as common property for grazing or other purposes, or might be leased to tenants paying rent to the village; the rest of the land was occupied for a year or longer in turn by the hereditary land-owning families.

During recent years this traditional organization has undergone considerable changes. The Culture System, under which part of the land was cultivated with export crops for the government, increased the power of the village headman, and made landholding a burden that the people endeavoured to avoid. With the Liberal reaction against the Culture System the encouragement of individual landholding weakened village ties, but the so-called 'ethical policy' of the present century has aimed at strengthening the village in its corporate capacity. Local officials used their personal influence to induce the villages to raise money for the building of bazaars, village halls, for road making, street lighting and so on. The Village Regulation of 1906 gave a legal basis to such activities. Before long almost

every village had its treasury to provide funds for everything that the local official thought the village ought to want, such as a school, a village bank, a stud bull and a pedigree goat. Every village was expected to hold periodically a village meeting to settle its affairs, and elaborate regulations provided for the conduct of these meetings on democratic lines. But in the opinion of competent observers very little of the former village autonomy remained. At the same time village boundaries were often readjusted with a view to increasing administrative efficiency. Thus the modern village has lost much of its original character and, with the growth of trade and the improvement of communications, is no longer self-contained and self-sufficient.

The Javanese house diverges notably from the normal pattern in the archipelago; instead of being raised on piles it stands level with the ground and the floor consists of earth flattened and made hard by stamping. The walls are ordinarily of bamboo, and the roof of palm leaf, with house posts of wood and cane. There is no window, but sometimes a square trellised aperture in one or more of the walls. The sleeping chamber is partitioned off from the living room, and the better type of house has a verandah and a bath room. The furniture is simple; a wooden settee, serving as bed or couch; one or two mats and a few cushions; a table, two or three chairs, a wooden chest and a kerosine lamp. Nowadays even the poorest will probably have a teapot with cups and saucers. Round almost every house there is a small garden, planted with palms, fruit trees and vegetables. Wherever possible there is a small stream or pond in which fish, usually a species of carp and by preference gold fish, are cultivated (see p. 231).

The men wear a kerchief of coloured cloth, twisted round their head; when at work in the fields they wear also a hat of bamboo or plaited grass. The jacket is of white cloth, tight round the neck and hanging loosely round the hips. Mostly they wear cotton shorts, and over these a skirt of coloured cloth, consisting either of a single length with both ends free (*kain*) or, more often, of a piece with the ends stitched together (*sarong*); ordinarily the skirt reaches down to the ankles, but when at work it is girt up round the waist. The skirt is secured by a leather belt. The cultivator usually carries a pointed knife, and the aristocracy on ceremonial occasions wear the kris or dagger. Except for officials and townsfolk they mostly go barefoot. The dress of the women looks much like that of the men, but they also wear a brassière (*kemben*) and a scarf (*slendang*) in which they



Plate 5. Javanese woman at market



Plate 6. Balinese girls weaving cloth

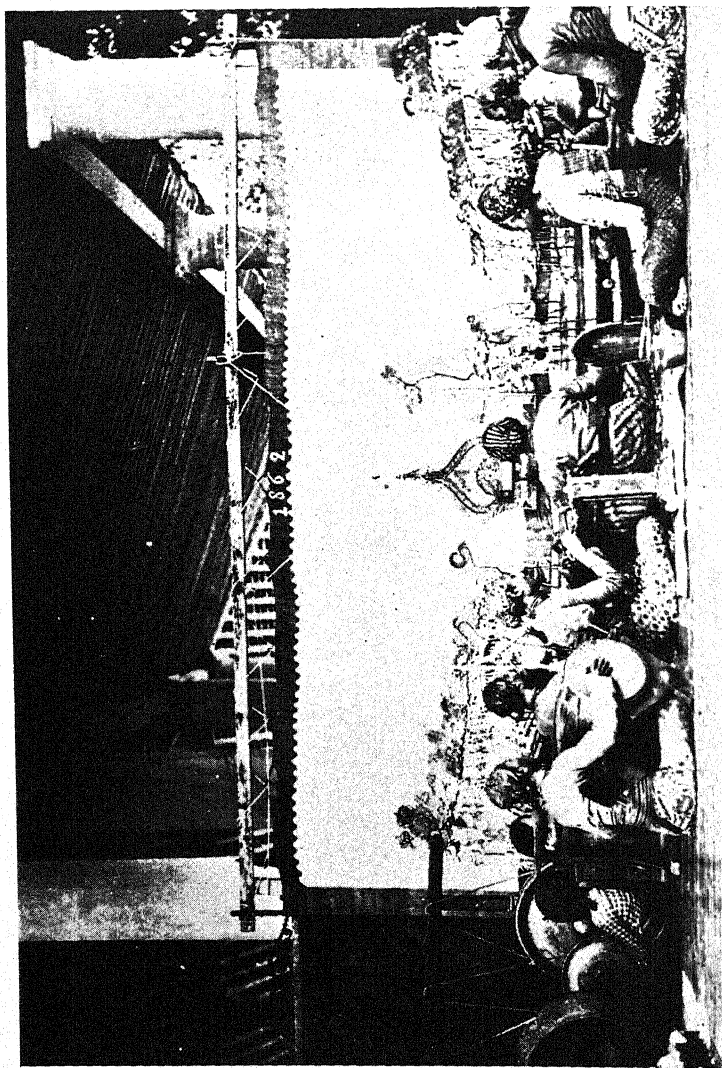


Plate 7. Javanese orchestra or gamelan accompanying a puppet-show

The man in the centre of the photograph is the *dalang* who operates the puppets, speaks all parts of the play, and directs the music. The audience, which sits on the other side of the white screen, sees only the shadows of the puppets.

carry their babies or their goods. They wear nothing on their heads but deck the hair with pins and flowers and are fond of large and costly ear-rings.

The staple diet consists of rice and fish, either as dried fish, fish paste or fish sauce, and varied with vegetables. Their other wants are simple: betel and a *strootje*, a native cigarette flavoured with clove, satisfy most of their requirements. Being Muslims, they are little given to alcohol, but some are fond of opium.

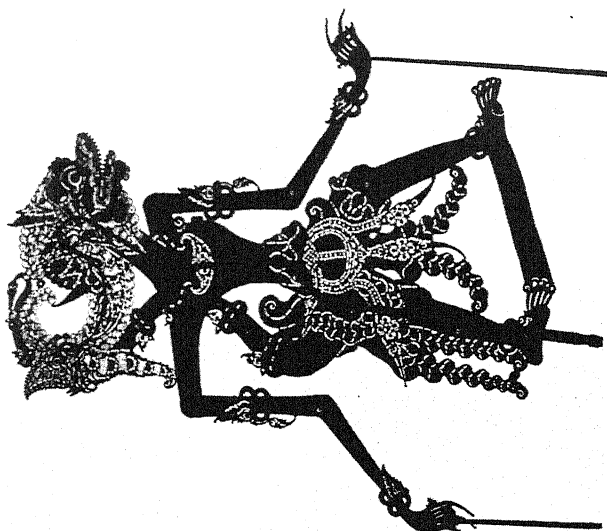
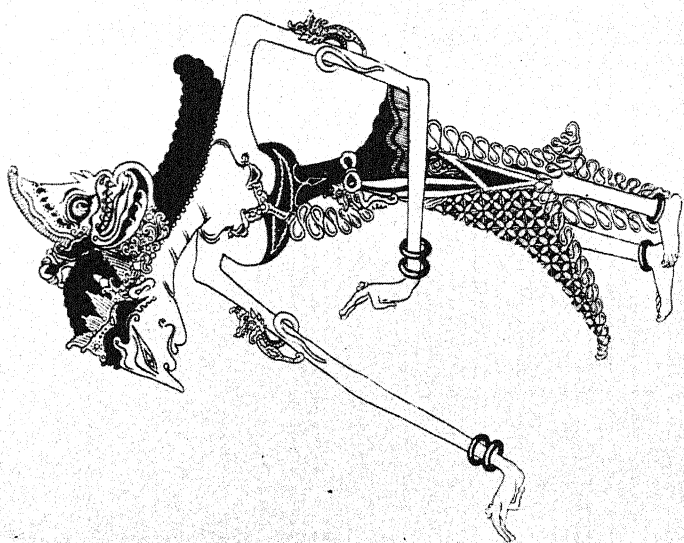
The main occupation of almost every villager is agriculture, especially the cultivation of rice. The present system of communal tenure arose under the Culture System, when land holding was a burden rather than a privilege. The occupation of land is confined to certain families, and formerly the land was redistributed annually. Now that land is an asset much of it is held for life by the same man and may pass to his heirs at death. Individual holdings are small and scattered in minute parcels. The Javanese is a diligent and, by oriental standards, an efficient cultivator. Of late years there has been much progress in the cultivation of crops for sale, but the world economic depression caused a setback in this movement. Before the depression a large number of cultivators found part-time employment on the sugar plantations. Almost every regency has its characteristic art or craft, but these are rarely of more than local importance. Apart from agriculture the chief occupations are batik-printing, weaving, hat-making and, along the north coast, fishing. Batik, a primarily Javanese industry, is a method of producing coloured designs on cloth. The first part of the design is drawn on the cloth and then everything except the part to be coloured is covered with molten wax from a funnel-shaped instrument. After the first dyeing the wax is melted off with hot water and the next part of the design treated in the same way and the cloth dipped in dye of another colour. The process is repeated until the complex design, usually of plants, birds or butterflies, is complete. There are hundreds of these traditional designs, some of which are peculiar to particular districts, while others are reserved for princely families (Plates 54, 55). Batik is chiefly centred at Jogjakarta, while weaving is widespread (Fig. 58). In recent years the government has encouraged the use of machinery, with no little success; but it has been found, contrary to anticipation, that hand looms are often more profitable. The only large-scale native industry of any great importance is the manufacture of cigarettes for native consumption. The people take little part in commerce, except in petty retail trade, conducted largely by the women. Carting has

long been an important subsidiary means of livelihood, and during the past twenty years many people have taken to driving motor-buses and taxis.

Javanese is the chief literary language of the archipelago and has an extensive literature, chiefly poetry and chronicles, dating back to the eleventh century. The two great Sanskrit epics, the *Mahabharata* and the *Ramayana* cycles, have always been a source of inspiration for Javanese literature. The *Mahabharata*, which has enjoyed more popularity in Java than the *Ramayana*, relates the struggle for supremacy between two branches of the royal Bharata family, which culminated in a war between cousins. The two most famous local chronicles are the *Nagarakrtagama*, written in the fourteenth century and giving an account of the founding of the Majapahit empire, and the *Pararaton* which was composed about the end of the fifteenth century. The modern nationalist movement has stimulated literature, and the development of Javanese as a means of bringing the people into touch with the modern world has been encouraged by the government through the Bureau for Popular Reading (see p. 36). The script is of Indian origin.

There are three forms of the spoken language with many subsidiary varieties. One form is used by superiors to inferiors and by the common people amongst themselves; a second is used when addressing officials, and the third is the language used when addressing native princes. There seems, however, to be a tendency to simplify these complications.

The favourite pastimes are music, dancing and the *Wajang Koelit* or shadow play. The music, based on the pentatonic scale, is highly developed and is pleasing even to European ears. Men and women do not dance together and there is little ordinary dancing for amusement. Most of the dances consist of movements expressive of some emotion or mental state and the dancer is generally accompanied by the intricate rhythms of the *gamēlan* or Javanese orchestra, though in a few dances the accompaniment is provided by a professional female singer. The two most distinctive styles are the *solo* and the *djogja*; they differ in the way the arms are lifted and in the foot and leg movements. The *solo* style creates a serene impression while the *djogja* involves more vigorous action. The majority of the dances are comparable with the European ballet and are performed by groups of four or eight professional dancers. The *srimpi* and *badaya* are dances of this type performed by female dancers in the privacy of the *kraton*, or palace, of the Javanese princes.



Plates 8 and 9. Puppets as used in Javanese shadow-plays

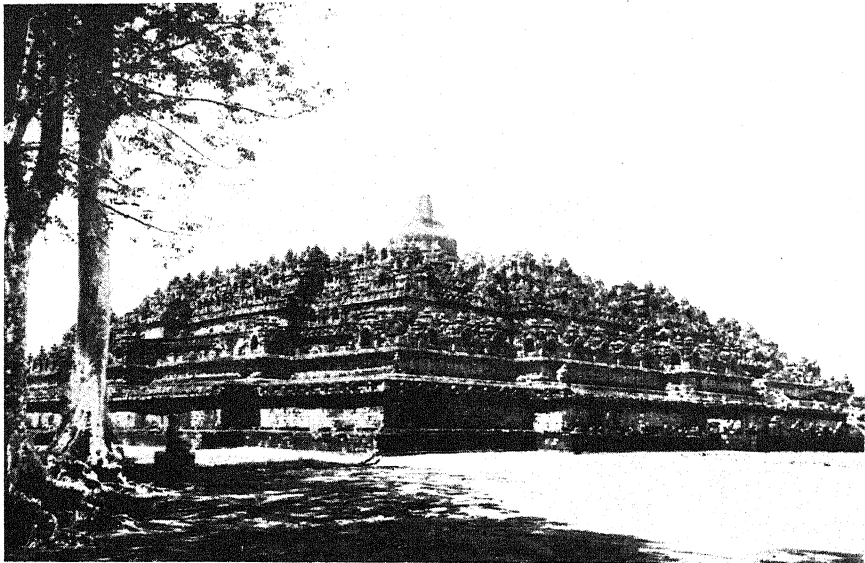


Plate 10. Borobodoer

A general view showing the massive scale on which the Buddhist *stupa* is constructed. The *stupa* consists of ten terraces, the lower seven being square, the upper three circular. A great bell-shaped *stupa* (the *dagob*) crowns the highest terrace.



Plate 11. Borobodoer: bell-shaped *chaityas* or cupolas on one of the circular terraces. Each of the *chaityas* or cupolas contains a statue of the Buddha similar to the one seen in the foreground.

The *gamēlan* varies in detail from place to place but the description of one by A. R. Wallace* at a village near Modjokerto gives a clear idea of the chief types of instrument: The instruments 'are chiefly gongs of various sizes, arranged in sets of from eight to twelve, on low wooden frames. Each set is played by one performer with one or two drumsticks. There are also some very large gongs, played singly or in pairs, and taking the place of our drums and kettledrums. Other instruments are formed by broad metallic bars, supported on strings stretched across frames; others again of strips of bamboo similarly placed and producing the highest notes. Besides these there are a flute and a curious two-stringed violin, requiring in all twenty-four performers. . . . The general effect was very pleasing, but, owing to the similarity of most of the instruments, more like a gigantic musical box than one of our bands'. The *gamēlan* of Bali is similar to that of Java. The *Wajang Koelit* is the chief form of dramatic entertainment, but there are also puppet shows (*Wajang Golek*). The *Wajang Koelit* is the most popular entertainment among the Javanese and is in fact more than an entertainment for it is a combination of literature, music and handicraft and also teaches a philosophy of life. The audience sits in front of a white screen behind which is the *gamēlan*, the puppets, and the man who operates them (*dalang*). An oil lamp is suspended above the head of the *dalang* so that the shadows of the puppets alone are thrown on the screen. About two hundred puppets are used and the *dalang*, in addition to operating the puppets, speaks all the parts in the play, both male and female, and directs the music (Plate 7). The characters are taken from the *Mahabharata* and the *Ramayana* and the plots also come largely from the same source. In later times artists, mostly unknown, have created new stories which do not really belong to these epics; the use of the same characters, however, provides the necessary link with them. The spectator sees on the screen heroes performing gallant deeds, and villains and traitors executing their foul intentions. The screen is therefore compared with the stage of the world and the *dalang*, invisible to the audience, to Providence which knows and plans all worldly happenings. The religious element in the *Wajang* is emphasized by the *dalang* performing some rite, such as the burning of incense while a prayer is uttered. Performances by living actors (*Wajang Wong*) are comparatively modern, having been introduced by the sultan of Jogjakarta in the eighteenth century. They are rarely given on account of their expense. The cinema is

* A. R. Wallace, *The Malay Archipelago*, 3rd edition, p. 103 (London, 1872).

popular, but only a few films with local actors have been produced and these under European direction.

The art of architecture suffered an eclipse in Java when Islam replaced Buddhism as the religion of the people; it reached its greatest perfection in the Sailendra period (see p. 41) when Boroboedoe and other great Buddhist temples were built. With few exceptions, these temples were completely deserted and their ruins often lost sight of until rediscovered in the nineteenth century.

Boroboedoe, the largest and best known of the Buddhist *stupa* in Java, was built in the eighth century A.D. It is constructed on and around a hill and consists of seven angular galleries surmounted by three circular terraces. The walls of the galleries are carved in bas-relief and depict, among other themes, the life story of Buddha; in addition they have hundreds of niches, in each of which is a statue of Buddha. The circular terraces have seventy-two bell-shaped *chaityas* each holding a life-size image of Buddha (Plates 10-12, 14).

Sivaism as well as Buddhism gave rise to great temples, the best known example of which is that of Tjandi Prambanan (Plate 13).

The group of temples, known as Panataran, near Blitar in central Java, was built in the tenth century and is of special interest as some of the buildings have been completely restored. The carvings show episodes from the *Ramayana*. The mosque at Koedoes is a rare example of a Buddhist temple which continued to be used for religious purposes after the change to Islam. The only other example of this in Java is a mosque at Grisee near Soerabaja.

Soendanese

Much that has been said of the Javanese applies also to the Soendanese. The Soendanese, however, is much more cheery and light-hearted, and, although his costume resembles that of the Javanese, he indulges in brighter colours. The house is built on piles instead of on the ground. The homeland of the Soendanese is among the Preanger hills and, though rice is the chief crop, the situation favours a wider variety of cultivation. The village is not a single large complex but a collection of hamlets each comprising several distinct groups of three or four houses. The rice lands and other lands are held in individual possession. Arts and crafts resemble those of the Javanese, but there is no batik work, and drama and dancing are less developed.

Madoerese

In Madoera there is little rice land. The people live a harder life

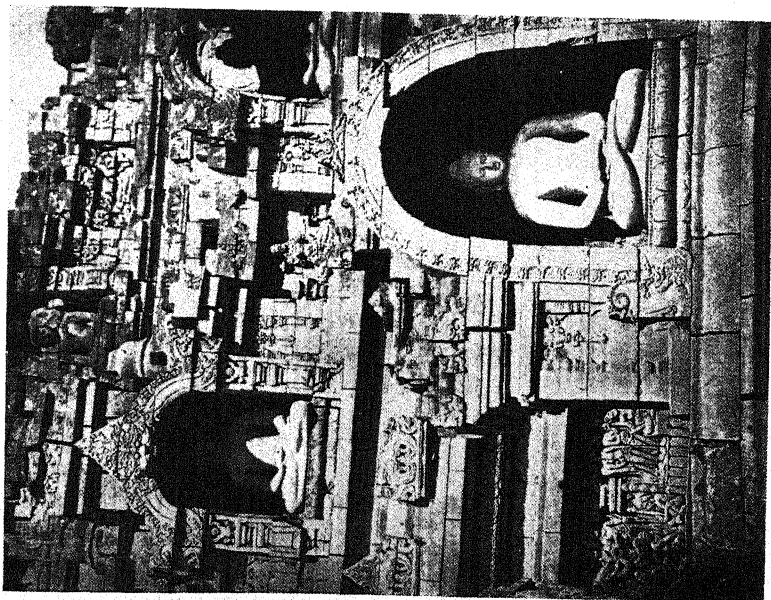


Plate 12. Borobodoer: sculptures on the outside walls, west side. The walls, which enclose the terraces, are elaborately sculptured. There are altogether 432 niches, with statues of the Buddha in each one.

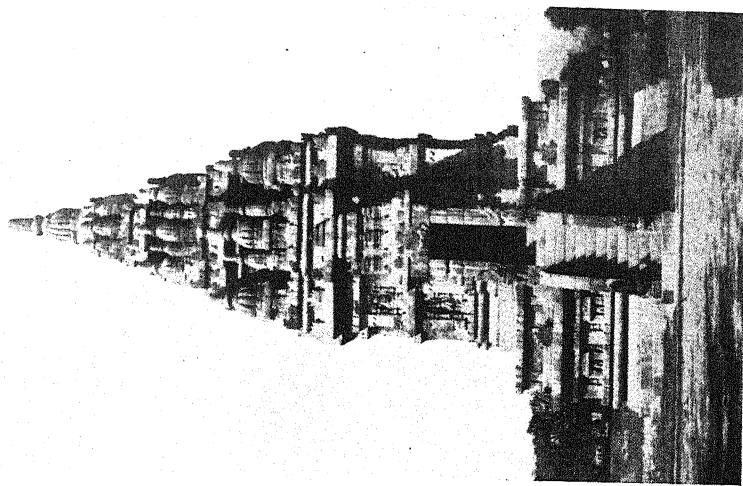


Plate 13. Prambanan: part of a group of Hindu temples, dating from about the ninth century A.D.

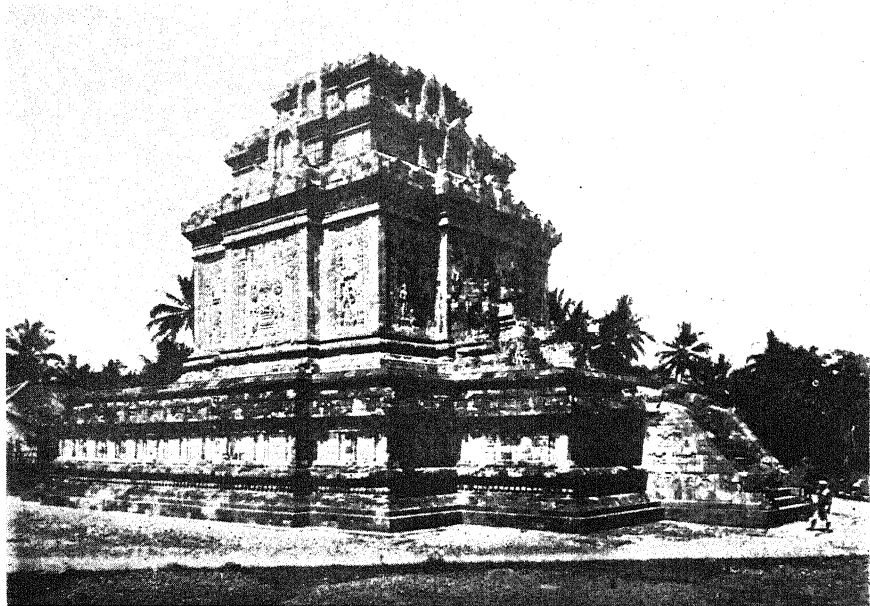


Plate 14. Tjandi Mendoet

This beautifully proportioned and richly carved Buddhist temple was built about the same time as the Boroboedoe *stupa*.

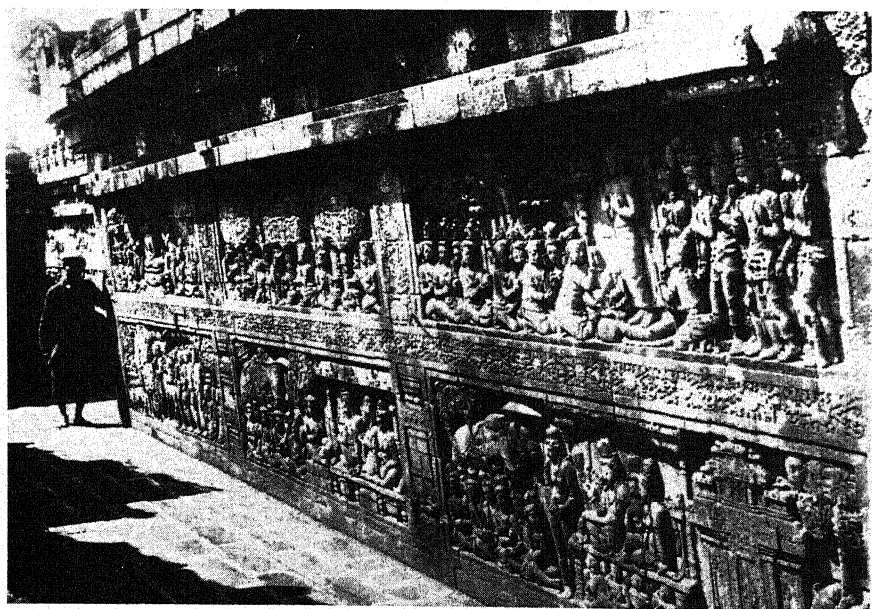


Plate 15. Bas relief, Boroboedoe

The carvings on the walls of Boroboedoe are particularly fine. They represent Hindu myths and legends as told in the *Ramayana*.

and, though less intelligent than the Javanese, have more persistence. The typical Madoerese village is widely scattered over many tiny hamlets of four to ten families. The chief crop is maize, but the principal means of livelihood is cattle breeding. The cattle require a large area for grazing, and as they are stabled in the compounds, the Madoerese village is uncleanly. Near the coast, where cattle are fewer and fishermen predominate, the villages are larger and, when Madoerese settle in Java they form large villages much like those of the Javanese, except that the land is held in individual possession. The chief pastime of the Madoerese is cattle racing, and successful racing-cattle are very valuable.

Other Peoples

Among the minor peoples of Java may be noted the *Tenggerese* and the *Badui*. They seem to have a large admixture of earlier stocks and their religion is a degenerate Hinduism. Both are hill peoples, the former living in the Tengger-gebergte of Oost-Java and the latter west of the Preanger hills in West-Java. Maize is their chief crop. The *Kalang*, formerly a distinct people of foresters, have now been absorbed in the general population.

PEOPLES OF SUMATRA

Apart from backward tribes the peoples of Sumatra fall into three main groups: Malays, stretching across the middle of the island from east to west and represented chiefly by the Menangkabau and the Coastal Malays; the Batak and Lamponger, respectively north and south of the Malay belt; and the Atjeher in the extreme north-east showing affinities with both Malay and Batak, strongly coloured by influences from outside. Presumably successive immigrations of Malays from the mainland drove the earlier peoples to the west, north and south. At the present day there are numerous distinct peoples with customs showing a wide range of variation on a pattern fundamentally similar.

Menangkabau

The Menangkabau extend from the middle of the island to the west coast; they are Muslim, but their social organization is strongly matrilineal. Four main lines (*Soekoe*) are recognized, but these are divided into about twenty-five groups in each of which numerous families trace their descent through the female line to a common

ancestress. Inheritance is in the female line and the children derive through the mother their names, property and privileges; in default of children the inheritance passes to the brother, sister or sister's children. Marriage within the group is prohibited. On marriage the woman remains with her maternal relatives and the man also stays in his former home; the head of the new household is the wife's brother or an older male relative on the maternal side, who is responsible for managing the family property. With the spread of Western education this form of social organization is found increasingly irksome and inconvenient. As well as the kinship organization there is also a territorial distribution into village tracts. The village tract usually consists of a chief village and subordinate hamlets, each with its own ring of cultivation and waste land. Within the hamlet the people are grouped by families. The village tract has its own village government, embodied in the descendants of the original founders of the settlement, the 'parent-families'. Ordinarily there is a Council House (*balai*) for village meetings and a hut where there hangs a wooden gong used for warning and for summoning the people; there is usually a market square, shaded by a large tree.

Within the hamlet each distinct group of families ordinarily occupies a common family house. In some parts the houses stand separately each in its own compound, growing fruit trees and vegetables and with outhouses for grain and cattle; in other parts the houses are clustered together in a common enclosure. The floor is some four or five feet above the ground, supported by poles which reach up the roof and divide the house into separate compartments. A ladder goes up to a large living room and at the back of the house are separate rooms for each of the families; sometimes annexes are available for distinguished guests. The form of the house is characteristic. The roof has the shape of a saddle, ending on either side in a point resembling a horn; not infrequently there are two horns in the middle and sometimes also on the annexes. The roof is often ornamented with flowers and beaten tin, and the walls are elaborately decorated with paint and carving, as also are the weapons and utensils (Plate 16).

The dress shows many local variations in detail but nowadays is usually of the Malay type (Plate 5). The men wear a kerchief and short trousers when at home or working in the field, but put on a *kain* or *sarong* and vest and jacket for full dress; the women wear a *sarong* and *slendang*. The boys are circumcised and the girls incised.

The ears of the girls are bored while they are very young, and their teeth are filed before marriage.

The staple food is rice, with vegetable supplements. The chief occupations are agriculture and trade, with fishing and various crafts as subsidiary means of livelihood. The chief food crops are rice and maize, and, among other crops, pepper, coffee and tobacco are important. The standard of agriculture is high and great ingenuity is shown in irrigation; less attention is paid to cattle breeding, and oxen are less carefully bred than buffaloes. The Menangkabau are notoriously keen traders and are almost the only people of the archipelago who have been able to hold their own in trade against the Chinese, but they have made little progress in commerce on a large scale. They are famous as craftsmen, notably in filigree work and in the casting of bronze, as well as in painting and wood carving, and artistic sensibility is widely spread. The literature is traditional and poetic, and the customary laws are preserved in writing. The script now used is Arabic.

Redjang-Lebonger

The Redjang-Lebonger, who are often classed as two separate peoples, have affinities both with the Menangkabau and the Coastal Malays. They inhabit the tract between Palembang and the west coast. They are nominally Muslim, but are lax in their religious observances and the majority remains uncircumcised. The social organization is patrilineal, each large family (*marga*) having its own male chieftain. The Redjang show Javanese influence and their houses resemble those of the Javanese, though standing on piles and not on the ground level. Among the Redjang the forehead is artificially flattened. Most of the men speak Menangkabau, but the native tongue is Redjangese, which has a fairly extensive literature in a script of Indian origin. Other west coast peoples of Malay type are the Serawaier of Benkoelen and the Oeloeanese of Tapanoeli. The former closely resemble the Malays of the east coast except in their dialect. The latter, though reckoned as Malays, are less civilized and appear to have Dravidian affinities; during recent years many have adopted Christianity.

Coastal Malays

The Malays of the east coast differ markedly from those of Menangkabau. The most typical representatives are those classed in the census as Melajoe, who form the bulk of the population of the Oostkust and Riouw Residencies. Their religion is Islam, and the

social organization is patrilineal. The villages are almost always beside a stream. The houses stand some five feet above the ground; the walls are wood or cane with a roof of palm leaf. The men wear a *sarong* and usually trousers, a short jacket and a kerchief; the women wear a *sarong* and a long jacket. Both men and women love bright clothing and ornaments. The main occupation is agriculture with rice and tobacco as the chief crops. Many are fishermen and boatmen, and they take readily to the sea, so that throughout the archipelago the coastal peoples are largely of Malay origin and the Malay language is generally understood. The script is Arabic, and there is a considerable literature largely religious.

The Malays of Palembang Residency, often distinguished as Palembangers, closely resemble the Melajoe and trace their origin to Malacca, but they show many signs of Javanese influence. In Djambi Residency there is a strong Menangkabau element, and matriliney is found. Other minor peoples on the mainland are the Pasemaker, Ampatlawanger and Semendoe, all closely allied. The Pasemaker, who extend over into Benkoelen, claim to have come from the old Javanese kingdom of Majapahit. Among the Semendoe, the man pays a bride price but moves to his wife's village.

The natives of Bangka and Billiton, though regarded as Malays and professing Islam, are very backward in culture and seem to have an aboriginal strain; they claim to have come from Palembang. There are three groups: the Orang Goenoeng or hill-folk; the Orang Doeroet or land-folk; and the Orang Sekah or sea-folk. The social organization is simple with little distinction of classes, and the headmen are not greatly respected. Cultivation is mostly of the shifting type.

Batak

The term Batak seems at first to have been applied generally by the Coastal Malays to the people of the interior as being heathen, wild or uncivilized, but it has been adopted as their proper name by a number of separate tribes falling into two main groups: the Daïri, comprising the Karo and Pakpak tribes, and the Toba, including all the other tribes. Though found mainly in the uplands round lake Toba, they touch the coast near Natal. The southern tribes are now Muslim and those of the centre largely Christian; in the north the cult of local and ancestral spirits still survives, but is coloured by Hinduism and is more systematized than is usual where similar beliefs prevail. Some tribes preserve the skulls of deceased ancestors.

Cannibalism survived locally until the present century. Shamanism has a strong hold on the people and the shamans are almost always women and hereditary; the spirit possessing the shaman speaks through her and not merely, as is usual in the eastern islands of the archipelago, to the shaman. The social organization is based on the family group (*marga*), and is strongly patrilineal. Marriage is exogamic. The man pays a bride price for the woman, who leaves her own tribe and family for that of the husband. Polygamy is not unusual. Wives and daughters have no share in the inheritance.

The village has now taken the place of the family as the unit of government. The village community consists of the descendants of the original family together with those who have been admitted to it by marriage or settlement. The headman administers the village with a council of elders. In some villages the land is held in common by members of the *marga*, but there is a wide variety of tenures. The Toba village consists of several small hamlets, each of six or seven family households in two parallel rows separated by a vacant space or street. The Karo settlements are usually large, with the houses irregularly grouped in a cruciform pattern round a village square. The Karo village is surrounded by a hedge and trees, but in some tribes the village is protected by an earthen wall or bamboo palisade. In most villages there is a plot of vacant land for village meetings, and a bachelors' house, where the young men and strangers sleep; in the south the girls likewise have a separate communal house. The houses stand on piles and are often eight feet above ground level. The typical Batak house has a saddle-shaped roof with pointed ends decorated with buffalo horns, and the walls are often elaborately carved. There is one large room, divided up at night into separate family compartments, and a dozen or more families may occupy a single house. The Karo houses have a long passage with the separate compartments on either side and a balcony at each end. The Pakpak houses have a central hearth with a gallery for the women in an upper storey. The Toba houses are often little more than huts of straw or clay (Plate 17).

The Batak have now taken generally to Malay, or even to European costume, but in the more remote villages the people wear no more than a wrap of home-spun, home-woven cloth from the loins downwards, to which the women add a cloth round the breasts; the Karo chiefly affect blue and the Toba brown. The teeth are filed; with boys this is done at puberty or rather earlier and with girls at about seven years of age. Incision is practised on boys at puberty and on

the girls at about seven; in the south this has been replaced by Muslim circumcision. Some Batak insert little round stones beneath the foreskin of the penis. The chief occupation is agriculture, with rice as the main crop. The Batak have profited greatly from education in the mission schools and are now found all over Sumatra and elsewhere as clerks, teachers, doctors, surveyors and so on. In the Batak country the trade is mostly in the hands of Malays, but many Batak make a living as shopkeepers and traders along the coast. The literature, in a script of Indian origin, is not extensive, but a large stock of legend and romance is handed down orally, and listening to this is a favourite pastime.

The Gajo, further north, show some affinity with the Batak, but have for the most part adopted the culture of the Atjeher by whom they are surrounded and to whom they have long been subject. In the inheritance of property the residue of the estate passes to the youngest son.

Lamponger

The Lamponger in the south of Sumatra have cultural affinities with the Batak but have been strongly influenced by the Soendanese, their neighbours across Soenda strait. This influence is chiefly apparent among the Orang Pablan, the people of the plains, who differ in many respects from the hill-folk, the Orang Aboeng. Although Muslim, the practice of head-hunting persisted, especially among the hill-folk, until suppressed by the Dutch. There are five provinces divided into smaller districts (*mega*, the equivalent of the Batak *marga*) and subdivided into villages. The social system is patrilineal with complicated marriage rules. The man pays a bride price for the woman who joins his family and leaves her own; after the man's death the woman passes to his brother or other male relation.

The villages lie alongside a stream and usually comprise several distinct hamlets. The houses, built of bamboo, stand in separate compounds on piles high above the ground; they often have two and sometimes three storeys, with many rooms on each floor; the walls are painted and decorated. In the middle of the main village there is a communal house where the village council meets, feasts are held and strangers may find lodging; a similar house is found in each of the subordinate hamlets. The Malay costume has been generally adopted; some of the cloth is home woven and the art of weaving is further advanced than among the Batak. The food is



Plate 16. Menangkabau house, Sumatra



Plate 17. Batak village near Berastagi, Sumatra

This village is inhabited by the Karo tribe of Batak. The houses are built on piles. Buffalo horns adorn the pointed ends of the roofs.

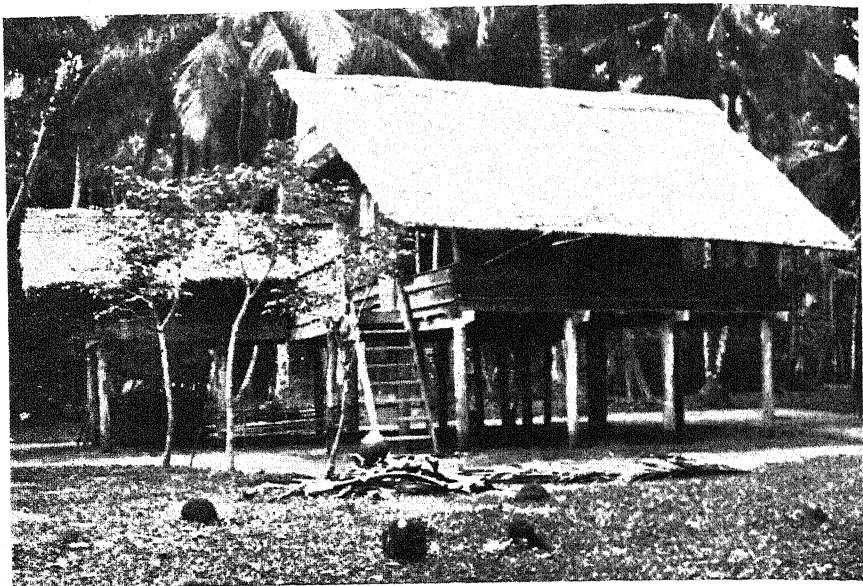


Plate 18. Atjeh house, Sumatra



Plate 19. Toradja village, Celebes

simple, mainly rice and vegetables; fish and flesh are little eaten. Agriculture is the chief occupation, and pepper is an important crop. The general standard of culture is high, and the custom by which boys and girls exchange love letters has encouraged literacy; the script is of Indian origin.

The Benkoelen and Kroë peoples have much in common with the Lamponger but have come more closely under the influence of Malay culture.

Atjeher

The Atjeher comprise numerous tribes in the extreme north. The coastal people have been strongly influenced by foreign contacts and differ in many respects from those of the interior, but the war against the Dutch (1873-1900) welded them all together into a common nationality. They are Muslims, fanatical but not strict. The social organization is aristocratic, with a division into nobility, commoners and those of servile origin. Class distinctions though sharper than among the Batak, are less marked than in the areas penetrated by Javanese influence in south Sumatra. Society is built up on the family group and four main groups (*kawom*) are recognized, but its genealogical character is now disguised beneath a territorial arrangement dating from the adoption of Islam and later systematized by the Dutch. At marriage the man pays a bride price, but the woman remains in her own home, where the husband either visits her or joins her. The children are brought up by the mother and the father may see little of them, but he accepts responsibility for their welfare. Polygamy is unusual, and so also is divorce.

The villages are grouped for religious observances and originally there were four villages to a mosque, the latter standing between the villages that it serves. The number of houses in a village varies widely; sometimes they are grouped within a ring fence and sometimes scattered. Each village usually contains members of all four *kawom*. A communal house serves for village meetings and prayers; formerly the bachelors slept there, but this is now unusual though it is still used as a rest house for strangers. Each house stands in a fenced compound, planted with fruit trees and containing the granary and cattle shed. The houses are built on piles, and are divided into several rooms with a verandah at the back and front; often there is an annex for unmarried daughters.

Both men and women wear baggy trousers; the rest of their costume, jacket, vest and skirt differs locally. Circumcision is

practically universal and apparently pre-Muslim; incision is customary with girls. Both sexes file their teeth; the boys as soon as the permanent teeth arrive, and the girls after marriage, but among the latter the custom is obsolescent. The usual food is rice, with fish and vegetables; almost all chew betel and many smoke opium, but few take alcohol. Agriculture is the chief occupation; the land is held in common but cultivated by individuals, not communally. Rice, pepper and sugar are the chief crops. Silk weaving is a considerable industry and there are goldsmiths, woodcarvers and shipwrights. The literature, mainly religious and romantic, is in the Arabic script. The people are musical and delight in competitions in the recital of poetry. They are great gamblers and keep animals for fighting.

More Primitive Tribes

Among primitive peoples distinctive characters mark the Orang Akit, living on the Soengai Mandau, a tributary of the Soengai Siak. They show traces of Negrito origin and appear to be akin to the Semang of Malaya. They are said to have no idea of property except in the amulets worn by the women. They live on rafts moored to the shore, or in shelters along the beach. The main diet is fish caught with fish poisons, but they also hunt, using blowpipes. They are gradually dying out and women are so scarce that the men seek mates among their neighbours, the Sakai.

Another distinct group is formed by the Orang Laoet or seagypsies, scattered along the coast from Burma to Borneo, but especially numerous in the Riouw archipelago. So long as the weather allows they live at sea in boats, together with their dogs and fowls, but during the stormy season, they build shelters along the shore and live on shellfish. Some have settled permanently in the Inderagiri district and on the adjacent islands and cultivate plantations of coconut; many of these are Muslim in name.

The other primitive peoples fall into three groups, one on the east coast, one in the interior and one in the islands off the west coast.

The tribes along the east coast are the Sakai, Talang, Oetan, and Rawar. The Sakai live on the Soengai Mandau and many of them are nominally Muslim. Their social organization is based on the matrilineal family with observances resembling those of the Menangkabau. The main occupations are hunting and fishing, and their chief weapon the blowpipe, in which they use poisoned darts. The Oetan and Rawar live on the islands off the coast, and the Talang, rather less primitive, live further up the Soengai Mandau.

The tribes of the interior comprise the Orang Mamak, the Koeboe and the Loeboe. The Orang Mamak, who live in the Inderagiri district, seem to be a progressive branch of the Sakai that has taken to agriculture. They are divided into exogamic clans; husband and wife ordinarily remain with their respective clan. When the man dies the clan is responsible for his debts, but on the death of the mother the responsibility for her debts passes to the children. There are clan and family headmen, and these offices descend in the female line. The chief occupation is the cultivation of rice in temporary clearings. The Koeboe in the swamps of Djambi are more primitive and were still nomadic at the beginning of the present century. They have been described as lacking any social organization, but it seems that there are five sibs or family groups. The only marriage ceremony is the public announcement of mutual consent. Their shelter is a mere hut, a low platform without walls and with a roof of leaves. Their scanty costume consists of a piece of *tapa* cloth rolled up round the loins, though some are taking to Malay costume. They practice neither circumcision nor incision. They are ignorant of agriculture, as shy as wild animals, and so afraid of water that they never wash. Though able to make fire by rubbing sticks together, they used to eat their food raw but now cook their rice; a bamboo cooker is their sole utensil. They have no musical instruments and do not dance.

The Loeboe of the Tapanoeli and Westkust Residencies are in name Muslim. They are patrilineal and the men pay a bride price. Formerly they lived in shelters built in trees. They live chiefly by hunting with blowpipes, knife and bow, but some have taken to cultivation in the plains.

The peoples of Mentawai, Nias and Enggano, are very mixed. In Mentawai the culture indicates Polynesian affinities. The religion is a veneration and dread of numerous spirits, combined with fetishism; they have spirit houses in the forest, rough shelters in which a bamboo cylinder is decorated with rags, leaves and flowers. The villages consist of several small hamlets each under its own leader and the houses are built on piles. Some families live alone, but fifty may occupy a single dwelling, and there is a bachelors' house for the young men. The costume is a loin cloth, and primitive garments of leaves are still worn by some; the bodies of both men and women are extensively tattooed. The males are incised by splitting the prepuce. The girls have their teeth filed and blackened before marriage, and the teeth of the men are also filed. The chief occupations are fishing and hunting, but there is some agriculture, mainly root

crops being grown; sago is their principal food. They have canoes and sailing boats with double outriggers.

In Nias the people of the north and south differ considerably. Ancestor worship prevails, and the skulls of the deceased are preserved as fetish objects. Until recently head-hunting was common and human sacrifices were offered at the burial of a chief. Megalithic monuments are numerous and are still erected; they are especially characteristic of the south where the villages are surrounded by stone walls. There are communal meeting places paved with stones and stone steps lead up to the higher villages. In the north the family is patrilineal and the man pays a bride price; in the south matriliney obtains. The usual clothing is a loin cloth formerly of bark-cloth, or a short skirt for the women, but in the south under missionary influence the Malay costume is spreading. The teeth are filed and formerly they were also blackened. The boys are subjected to incision at puberty. Some rice is cultivated, but agriculture is at a low level; yams are generally grown and, in some places, taro and maize. Hunting and fishing are important occupations. The indigenous peoples do not use boats. Work in stone, wood and metal shows a keen artistic sense. Among the pastimes are kite-flying and a form of football with a cane ball that is kept in the air as long as possible.

The people of Enggano resemble the Loeboe and Koeboe. Until the present century they were wholly naked, and dwelt in houses resembling beehives perched on poles. They have a crude form of canoe with double outriggers. Many have now accepted Christianity.

PEOPLES OF BORNEO

All round the coast of Borneo the people are descended largely from immigrants who have settled there in comparatively recent times: Malays from Sumatra and the Riouw archipelago, especially in the west and south-west; Boeginese, especially in the south-east; Javanese, who have mixed with Malays to form the Bandjarese of south Borneo; and Chinese, especially in Sambas, Mampawah and Pontianak on the west coast. All these immigrants have penetrated the interior along the great rivers and have intermarried with the indigenous inhabitants. Natives who have accepted Islam and adopted the culture of the immigrants are known generally as Malays; the remainder are comprehended under the general term Dyak, which signifies 'highlander' or 'inlander' and covers a medley of tribes

widely different in culture. In central Borneo the leading tribes are the Kajan, Kenja and Bahau; in the south and east the numerous tribes are grouped together as Oeloe Ngadjoe, among whom the best known are the Ot-Danoem; the chief tribe in west Borneo is the Oeloe Air. Scattered among these are nomad tribes, such as the Poenan, who are also sometimes reckoned among the Dyak.

Dyak

The Dyak religion consists generally of a belief in tutelary powers and in non-human ancestors. Some kinds of food are taboo. These features suggest totemism but this explanation has not found general acceptance. Coupled with this belief is a trust in the magic power of fetishes and in the validity of omens. The priests, who are both male and female, are consulted regarding agricultural operations and on other ceremonial occasions, and in times of doubt or distress. Head-hunting was formerly common; the object seems to have been to gain possession of the powers of the man whose head was taken, but the custom was not purely religious and was associated with tribal quarrels.

Social relations are based on the family and not on the village. Among some tribes patriliney prevails, but the children inherit equally from both parents. Marriage is endogamic and usually monogamous. The woman has ordinarily the same rights as a man and among some Kajan the woman may be the head of an independent family group. The village consists of one or more long houses, built on piles; they may be five hundred feet or more in length, and accommodate some five hundred people. Among some tribes the whole family group dwells in a single house, with a special apartment in the middle for the head of the family, and a verandah for council meetings, used also as a resthouse for strangers. In some form the long house survives almost everywhere.

The dress ranges from a loin cloth to the dapper outfit of an up-to-date Malay. Tattooing is general, and the teeth are usually filed. Some of the backward tribes insert in the penis small knobbed bars or rings which are removable when not in use. Three classes of property are recognized: individual property, such as clothing, ornaments and weapons; property jointly acquired by a married couple during cohabitation; and property held in common by the family group. Cultivation is general, but of a low grade and mostly shifting; embanked land is found only near the coast. The food is rice, supplemented by maize and root crops, with fish and vegetables.

More Primitive Tribes

Among primitive tribes the Poenan are the best known. In social organization and customs they resemble the primitive tribes of Sumatra. Other similar tribes are the Boekit and Beket in the north, and the Olo-ot and Basep in the south and east.

PEOPLES OF CELEBES

The peoples of Celebes fall into three main groups; those of Makassar and the Boeginese in the south; those of the Minahasa region in the north-east; and the Toradja in the remainder of the island.

Peoples of Makassar and the Boeginese

The peoples of Makassar and the Boeginese (often known as Mandarese) are very much alike; the former occupy a wide tract round the town from which they take their name, and the latter occupy the rest of the southern peninsula and also have many settlements along the coast and in other parts of the archipelago. Both profess Islam, but have strong belief also in spirits of a non-Islamic kind, and the heathen priests, both male and female, have much influence. In the social organization three classes are recognized—nobles, commoners and slaves, though slavery is no longer permitted. Society is built up on the family, and both patrilineal and matrilineal principles of organization are found. In some parts it is the custom for married couples to live with the relatives of the husband; in others they live with the relatives of the wife. In most respects men and women are equal; both retain their separate property on marriage; women can act independently in business and some of the chieftains are women. Among the Boeginese the odd-numbered children belong to the mother and the even-numbered to the father; they inherit from the parent to whom they belong. Divorce is common and is easily obtained by either party.

The villages usually contain about thirty houses, made of bamboo and standing on piles. The men wear short trousers with a *sarong* over the shoulders, now often replaced by a jacket; the women wear a *sarong* and jacket. Both sexes are fond of bright colours, blue, green and especially red. Agriculture does not reach a high level; cultivated land is held in individual possession, subject to the requirements of the village, while waste land is held in common by the village. Many families live by hunting or fishing. The crafts comprise weaving, metal work and ship-building. The Boeginese have long been famous

as traders and navigators. There is a considerable literature in a script of Indian origin.

Toradja

The Toradja comprise numerous petty tribes. The name (*to*=man, *radja*=upland) was originally given by the Boeginese to their subjects in central Celebes, but has been adopted by Europeans to denote all inland peoples resembling these in speech or culture. The tribes distinguish themselves by prefixing *to* to the name of the river along which they dwell. Three main groups may be recognized: the Poso in the east; the Sigi and allied tribes in the north-west, and the Sadan in the south-west. These are much alike in culture, differing mainly in speech. The Toradja respect and fear ancestral and local spirits. Head-hunting was general until suppressed during the present century. Worship of the dead is a main factor in the religion of the Toradja. The corpses are placed on a platform until the flesh has decayed, when a feast is held and the bones are collected with much ceremony and placed in grottoes or, with some tribes, in niches hewn out of the rock. Among the Toradja of the south and west megaliths are erected to the memory of the dead. During the last fifty years many have adopted Christianity, especially among the Poso.

There is little distinction of classes, especially since the liberation of the slaves in 1906. The social organization is based primarily on kinship. Marriage is endogamous. The man is head of the family, but usually lives for some time with his wife's relations. The women enjoy considerable freedom. Formerly the villages were built high in the mountains in places difficult of access and were often fortified with earthen walls or bamboo palisades, but the Dutch government has tried to settle the people in the valleys in villages with houses in rows and each standing in its own compound. The houses are large buildings on massive piles, and are curiously decorated (Plate 19). Each contains four to six families in separate compartments round a central room with a common hearth. Formerly the dress consisted of a loin cloth of bark, but the Malay costume is spreading. The teeth are filed and the front teeth often extracted. The staple food is rice where this is obtainable, but the people of the more remote villages live chiefly on maize. Cultivation is mostly shifting, permanent embanked land being found only in some valleys. Cattle-breeding, fishing and hunting are important, and so also is the collection of forest produce.

Peoples of the Minahasa Region

The peoples of the Minahasa region present many features of interest. Practically all have adopted Christianity. The nobles still form a class apart from the common people. The social organization was formerly based on kinship, but has now largely given place to a territorial organization based on villages. With Christianity the people have adopted European clothes and manners, and the Minahasa region is often termed the 'Twelfth Province' of the Netherlands. Each village has its church and school, and both men and women are highly educated; many find clerical employment in Java and there is a strong contingent in the army. West of the Minahasa region numerous tribes show a gradual transition to Toradja culture.

In secluded tracts among the hills primitive people still survive. Among these are the Toäla, who until quite recently dwelt in caves and lived by hunting; they had no domestic animal, except the dog. Now they are taking to agriculture.

PEOPLES OF THE MOLUCCAS

The Moluccas comprise innumerable islands which may be arranged geographically in three groups: the northern group including Halmahera, Ternate and Tidore; the central group with Ceram, Boeroe, and Amboina; and the southern group including the Banda, Kai, Aroe and Tanimbar islands. The islands are small, their coasts have long been settled by immigrants and the peoples are very mixed; much of the information regarding their culture dates from before the rise of exact ethnological research.

The coastal peoples, whether deriving from Java, Celebes or Sumatra, are generally known as Malays, and this term comprises also indigenous peoples who have adopted Islam. The peoples of the interior are comprehended generally under the name Alfoer which, however, signifies no more than 'Inlander'. Christianity is the chief religion in the south of Amboina and has made great progress in Boeroe and Ceram; there are Christian groups in many of the other islands. Apart from Christians and Muslims, the people in general venerate and fear ancestral and local spirits; head-hunting persisted until stopped by the Dutch. In contrast with Borneo and Celebes true totemism is found; it is strong in Tanimbar and traces exist from Halmahera to Ceram and Amboina. People holding this belief regard

themselves as descended from certain animals or plants which they refuse to eat or even to look at. Associated with totemism is a grouping of the people into age-classes, although it is only in Tanimbar that this persists with any strictness. In Tanimbar and Kai a megalithic culture is found; in the former the stones are grouped in the shape of a canoe with small upright stones for the chieftains, a large flat stone for the people and a large sacrificial stone.

Except in Amboina and the Oeliassers, the social organization is built on the family group; in some parts the larger kinship units are matrilineal, but in general they are patrilineal. Marriage, except where matriliney exists, is exogamic. Polygamy is unusual. The villages of the interior are usually small groups of some half dozen houses, and there is a communal house which is sometimes a dwelling for spirits, sometimes a sleeping place for bachelors, and sometimes a resthouse for strangers, or it may serve for village feasts. The houses are often no more than shelters made of cane and leaves. The dress consists of a loin cloth and headgear. The teeth are filed and circumcision is practised. The staple food is sago, which needs little or no cultivation, and the chief occupations are hunting and fishing. The principal festivity is the war dance (*tjakalélé*), performed on ceremonial occasions by the warriors in full dress which is often reminiscent of old Portuguese costumes. In Amboina there is a national dance (*menari*) performed by girls.

PEOPLES OF NEW GUINEA

The greater part of Dutch New Guinea has not yet been brought under effective administration and, although some expeditions have been accompanied by ethnologists, much still remains to be learned about the numerous petty tribes with which the country is thinly populated. Three levels of culture are recognized. Along the west and north-west coast the culture is largely Indonesian, allied to that of Ceram in the west and to that of Ternate in the north-west. Along the north-east coast it is coloured by that of Melanesia. In the interior the cultures are Papuan. The religion includes a belief in good and bad spirits, and is characterized by numerous feasts at marriages and funerals. In some villages there is a spirit house (*mau*), larger than the ordinary hut, and often used for feasts and ceremonies, and sometimes as a sleeping place for bachelors. Head-hunting has not yet been wholly suppressed. Totemism is general, and the various tribes regard

themselves as descended from some animal or plant which they refuse to eat and avoid looking at.

The tribes are loosely organized and in many parts no authority above the head of the family is recognized. One feature of their social organization is a division into age-classes, through which each member graduates from childhood to old age. Some go naked, while others wear a loin cloth of bark. There is a general fondness for ornaments, and decoration of the body with garlands of flowers. These tribes have not yet learned to tap the sago palm for wine, and water is their only drink; their food consists largely of sago and fish. The chief occupations are hunting and fishing, though there is a little cultivation of root crops. Stone implements are still used, but are gradually being replaced by imported metal tools.

PEOPLES OF BALI AND LOMBOK

The population of Bali is mainly Balinese, a people who by general consent are of peculiar charm. They claim descent from Javanese who at various times have sought refuge from Muslim persecution. The religion is a form of Hinduism, with some Buddhist elements, and permeated by primitive superstitions. Of the three chief Hindu gods, Siva is the object of special devotion, and Vishnu and Krishna are regarded as aspects of Siva rather than as separate gods. The four castes of orthodox Hinduism are recognized, but there is no relation between caste and livelihood and the sudras, constituting the lowest caste, are under no special disabilities. Temples are numerous, usually ornate and often impressive. Under native rule the island was divided between several petty rajas; society is still aristocratic, but the social organization is based upon the territorial village. In some villages, however, a kinship organization is important and membership of the village council is confined to descendants of the original founder. Marriage is prohibited between close relations, including 'spiritual relations', as, for example, the daughters of the man's priest or teacher. Men, but not women, may marry with a member of a lower caste. Four forms of marriage are recognized. By convention the father of the man is supposed to arrange the marriage but elopement, with the tacit approval of the elders, is usual. The woman goes with the man, who is the head of the household. The status of women is formally lower than in most parts of the archipelago, but in practice they exercise much influence and enjoy



Plate 20. The *Baris Dadap*, a Balinese dance



Plate 21. The *Rangda* or witch-widows in Balinese dance

The climax of the dance in which the *Rangda* take part is a fight between them and the *Barong Keket*, from which the latter, as protector of the villagers, comes out victorious.

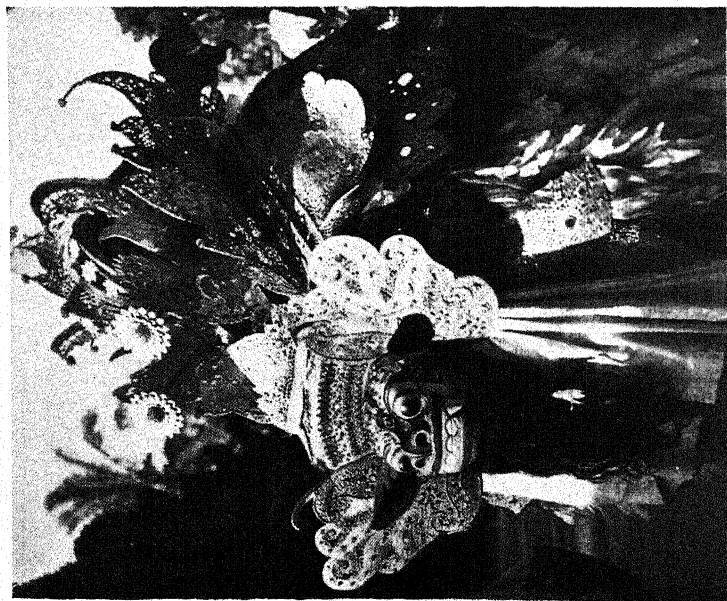


Plate 22. *Barong Keket*, mythical monster in Balinese dance
The mask held by the dancer is of polished scarlet wood, with protruding eyes and tusked jaws, its ears being framed in a winged tiara of perforated leather. From the chin there hangs a black beard of human hair, in which the essence of the monster's power resides.

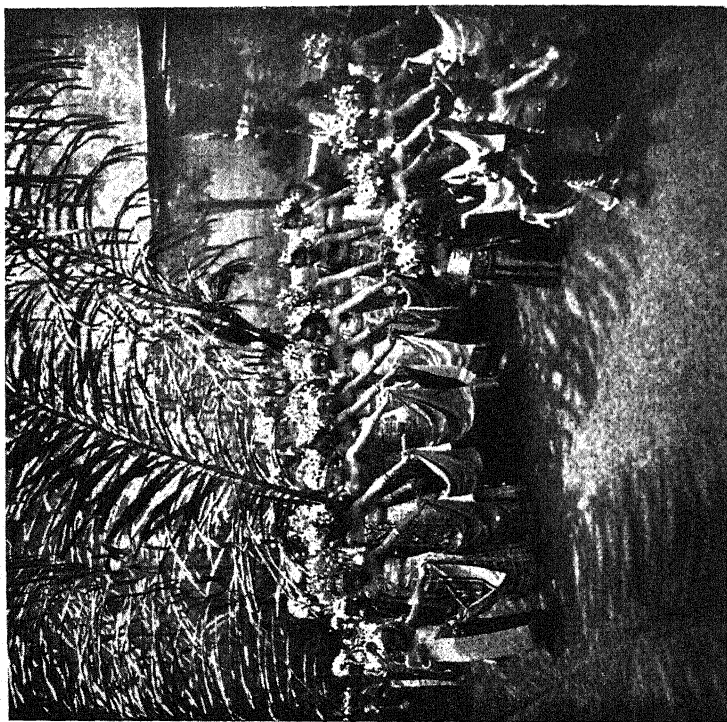


Plate 23. The *Redjang*, a Balinese dance

considerable freedom. Polygamy is not uncommon among the wealthier classes. Until prohibited by the Dutch during the present century *sati*, the burning of widows at the funeral of the husband, was practised by those who could afford the costly ceremonies that it entailed. Cremation is the orthodox method of disposal of the dead, but it involves much expense and burial is more common.

The villages are large, and the houses, built on piles and usually of clay, are arranged symmetrically, parallel and at right angles to a broad road running north and south. In the centre of the village is a large banyan tree, shading a vacant plot used for village meetings, entertainments and a market. In the larger villages there is a separate assembly hall (*balé agoeng*), a watch tower, a bazaar and a shed for cockfighting, though this sport is now prohibited. The cemetery and bathing place are usually on the south side of the village. The dress of the men resembles that of the Javanese, but the women customarily go nude above the waist, though this is no longer fashionable. Both sexes are fond of bright colours. Pork is a favourite article of diet, and palm wine and opium are freely used. The Balinese are excellent cultivators and are expert in irrigation; they pay great attention to the breeding of cattle and pigs. Petty trade is mostly conducted by the women. Arts and crafts reach a high level, and a strong artistic sense is evident in the metal and wood work and in the decoration of the temples; fine pottery is also manufactured. Their music, dancing and drama enjoy wide repute, and they have an extensive literature, mostly poetic, in a script of Indian origin.

Dancing plays a great part in the life of the Balinese. All the dancing is religious in the sense that it is connected with the temple rites in varying degrees, and, like the dancing of the Javanese, cannot be compared with European dancing for amusement.

All the temple feasts are accompanied by dances which are essentially ceremonial and generally slow moving. Among the best known of these are *Redjang*, a dream-like dance of smooth, unending motion, and *Baris* (Plates 20, 23). The *Baris* is the most splendid of Balinese dances and culminates in a mock battle in most forms, though certain *Baris*, such as the *Baris Kekoepoe*, are purely decorative dances performed by children. Certain dances, *Sanghyang* and *Ketjak*, are performed by dancers in a state of trance. The former is generally danced by small girls, or occasionally by boys or priests, while the latter is well known under the name of the 'monkey dance' to every tourist who visits Bali.

The method of inducing the trance consists essentially of holding

the heads of the dancers over the smoke of incense while a melody is sung by men or women sitting round the dancers. The tempo is at first very slow but becomes quicker and quicker as the moment of falling into the trance approaches. The *Ketjak* is a recent development from the *Sanghyang* under the influence of a great *Baris* dancer, Limbak. Like most Balinese dances it portrays a story from the Sanskrit epics, in this case the *Ramayana*; the performance is of an ecstatic ritual character and produces a great impression on the spectator.

The Balinese lives in constant fear of evil spirits, which cause disease and misfortune, and so has many dances whose purpose is to exorcise them. A large group of these dances is called *Barong*, from a mythical monster which plays a part in all of them. It consists of a long sagging body built on a framework of bamboo and string covered with various kinds of material and wearing the masks of different animals such as the tiger, wild boar or elephant (Plate 22). The *Barong* is animated by two men, one forming the front, the other the hind legs. The other main character in the *Barong* dance is the *Rangda*, the witch-widow (Plate 21) and the climax of the dance is a fight between these two in which the *Barong*, the protector of the villagers, eventually defeats the *Rangda*. The conflict is viewed with such intense emotion that a state of trance is induced in the dancers, the village mediums (kris-dancers) and in members of the audience. At a moment in the fight when the victory of the *Barong* seems doubtful the 'kris-dancers' rush to his assistance and attack the witch. Her power is such that they turn their kris on themselves and sometimes inflict wounds.

The *Barong* type of dance exists in many variants some of which emphasize the dramatic element which is in all Balinese dances, to such an extent that they may be regarded as dramas. Similarly there are dramatic *Baris* and the *Wajang Wong*. The latter is like the *Wajang* of Java, but it is acted by people who wear the mask of the character they represent instead of by puppets whose shadow on a screen is all that the spectator sees.

The Sasak, the chief people of Lombok, are nominally Muslim, but are very lax in their observances and one large sect allows the use of pork and strong liquor. Their houses are built on stone mounds and not on piles. The chief occupation is agriculture. Balinese influence is apparent in most aspects of their life, but culturally they are on a far lower level.

Two small tribes, the Bali-Aga, mostly in Bali, and the Bodha in

Lombok, apparently represent the earlier inhabitants of these islands. Although still very backward, their beliefs and customs have taken colour from those of the more civilized peoples by whom they are surrounded.

PEOPLES OF THE TIMOR GROUP

The islands from Lombok to Timor show a transition from Indonesian to Papuan grades of culture. The coastal peoples have a Malay element and are in general Muslim. The peoples of the interior are mostly pagan, but Christianity has made some progress locally, especially in east Flores. Megalithic remains, associated with sacrificial practices, are found in most of the islands and megalithic work is still carried on in Soembawa, Soemba, Flores, the Alor and Solor islands, Timor and Wetar. Modern megalithic art reaches a higher level in Flores than in any other place except Nias. Shamanism seems to be unknown. Totemism is found in Flores and the Alor and Solor islands, and plays an important part in the religious and social structure in most of the Flores-Timor zone. Descent is usually patrilineal. In some districts the sibs are grouped for marriage into age-classes, much along the lines obtaining among Papuans. Agriculture, though generally practised, is on a low level, and the chief crop is maize; the breeding of horses receives great attention, especially in Soemba and Timor.

EDUCATION

Elementary schooling in the Netherlands Indies is given in Dutch, in the various vernaculars and in Chinese, while higher education, except for vocational training, is mainly in Dutch. In 1939 there were 942 schools in which teaching was in Dutch, and 20,498 schools in which teaching was in the vernacular. These had 183,294 pupils and 2,141,311 pupils respectively. There were also 18 Chinese schools with 2,265 pupils and 57 Dutch-Chinese schools with 24,800 pupils. The schools are maintained by the government, by local bodies, and by non-official organizations. Most of the private schools are religious foundations managed by missionaries. There have long been mission schools in the Outer Provinces, but in Java, for fear of offending Muslim feeling, the missions were not allowed to open schools until the last half of the nineteenth century. It was not until nearly the end of the century that they received grants from the government, but since then they have been subsidized on condition

of satisfying the government requirements. Private schools have been maintained by the Chinese since about the beginning of the present century, and by the natives, especially during recent years, as one aspect of the nationalist movement. These schools also receive grants if they comply with the conditions laid down by the government.

One distinctive character of society in the Netherlands Indies is the large number of people recognized as Europeans, and therefore in need of schools suitable for Europeans. These have been provided by the government since the restoration of Dutch rule in 1816. At the end of the last century two-thirds of the modest expenditure on education was appropriated to European schools and, although native education has now come into the foreground, the demands of European parents, whose children spend part of their school life in the East and part in Europe, still determine the standard of general instruction, and raise it to a higher level than in many other tropical dependencies. Until 1848 the government made no provision for the instruction of natives, though a few of the better class were allowed to attend European schools. From that year schools were opened for natives, but the course of instruction was distinct from the course for Europeans, and aimed primarily at turning out subordinate employees for public and private business. In 1907 a first attempt was made to introduce general primary instruction by the opening of village schools, and since then the course of native instruction has been brought into conformity and linked up with the course for Europeans, so that the demand of European parents for a high standard of instruction is reflected throughout the whole field of education. The educational system as it exists to-day is a complex organization aiming to serve all classes and all types of people in the Netherlands Indies.

European Schools

For Europeans from six to sixteen there are European Lower Schools. There are seven classes and the children should ordinarily spend a year in each class. The course is generally similar to that in the corresponding schools in the Netherlands, so that children, when their parents are on furlough, can be transferred to the corresponding class at home. Under certain conditions non-Europeans are admitted to these schools. On passing out of the Lower School the pupil may go to a European Middle School. These are of two main types: Secondary Schools (*Hoogere Burger Scholen*—known as H.B.S.),

with a modern curriculum; and Grammar Schools (*Lycea*) with a classical curriculum. Some of the H.B.S. have a three-year course and others a five-year course; in the *Lycea* the course lasts six years. The curriculum in these schools is identical with that in corresponding schools in the Netherlands so that, not only may the student transfer from one to the other but, on successful completion of the full course, he is qualified to enter a university either in the East or at home.

Native Schools

For natives primary instruction is in general provided in the village schools, which are maintained by the village with financial support from local funds or, if local funds are inadequate, from the government. Ordinarily the building is provided by the village, and the teacher paid from local funds; the pupils are supposed to pay fees, but these are usually remitted, lest parents should be discouraged from sending their children. The schools are supervised by the Regents in Java and by the Subdivisional Officers in the Outer Provinces. There are three standards and the curriculum comprises reading and writing vernacular in the native and Latin script, elementary arithmetic and general knowledge.

Some schools, mainly in the towns, carry native instruction a stage further. These were formerly known as Standard or Second Class Native Schools, but are now termed Complete (*volledige*) Schools. The ordinary course lasts five years, but a sixth year is sometimes added to give instruction in agricultural or domestic science. Although the medium of instruction is the vernacular, Dutch has been introduced as one of the subjects in the higher classes since 1932. Ordinarily, however, instruction above the third standard is given in separate schools without the three lowest classes, known as Continuation Schools, which specialize in giving extended lower instruction. The Chinese are freely admitted to these native schools, but they also have primary schools of their own, where the medium of instruction is Chinese.

From these vernacular native schools the pupils can pass on to receive vocational instruction in the vernacular. Since 1937, it has been made possible for children to continue their general education in the vernacular with 'more extended lower instruction' (*Meer Uitegebreid Lagere Onderwijs*—known as 'Mulo') in Vernacular Mulo Schools, with a three years' course.

In all the other schools the medium of instruction is Dutch, and

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they are professedly based on Western models. For obvious reasons it is impossible to arrange courses in the vernacular parallel with those in Dutch, but it has been thought desirable that gifted children from these schools should have a chance to profit by higher Western instruction. Schools have therefore been provided which admit promising children who have passed the Third Vernacular Standard, and train them for further instruction in Dutch. These schools link up the Vernacular with the Western schools and, from the nature of their function, are known as Link Schools. The medium of instruction is mainly Dutch. The course lasts five years and carries the pupil to the same stage as the Dutch-Vernacular Lower School.

The Dutch-Vernacular Lower Schools are intended for native children of the better class. They have developed out of the former First-Class Schools, which were re-organized in 1911 so as to be on the same level as the European Lower Schools. The course lasts seven years and is very similar to that in the corresponding European schools, but includes the local vernacular and Malay. There are a few Special Schools with much the same course, but of older standing and catering particularly for Native Christians. The Dutch-Chinese Lower Schools provide a similar course for Chinese pupils. About the beginning of the present century, the Chinese, under nationalist influences and dissatisfied with the provision then made for their instruction, began to found their own schools, where English, as the medium of commerce, was preferred to Dutch. It was with a view to countering this separatist tendency that the government provided Dutch-Chinese schools, and this concession led the natives, under nationalist influences, to demand Dutch-Vernacular Schools.

From the Link Schools, the Dutch-Vernacular, Special and Dutch-Chinese Schools, the pupil may proceed to 'more extended lower instruction' in the Western Mulo Schools. These schools serve partly as 'finishing' schools, and are therefore attended also by some pupils from European Lower Schools who do not intend to continue their studies to a higher stage. But they serve also as preparatory schools for a complete secondary education. From the second year, therefore, the course branches out according to the further requirements of the pupils. The full normal course lasts three years, but there is a preliminary class for pupils who are handicapped by not speaking Dutch as their native language.

From the Mulo school the pupil may go on to the General Middle School, a secondary school corresponding to the three highest classes of the H.B.S. There are three branches to the curriculum: Oriental

Letters; Western Letters; Natural Science. In both the literary faculties the curriculum includes Dutch, French, English, German, General History and Geography, Civics, Political Economy, Elementary Science, Drawing and Physical Training; the Oriental branch further includes Javanese, Malay, and the History of Indonesian Culture and Art, and the Western branch includes Latin and the History of Ancient Culture. In the scientific branch the course is the same as in the three highest classes of the H.B.S., except that a vernacular is substituted for French.

Vocational Schools

Vocational instruction is available both on the basis of a native schooling, usually in the vernacular, and on the basis of a Western schooling, in Dutch. The following summary shows the provision made for vocational training:

(i) *Industrial Training:*

Native: Trade courses for two and three years in carpentry, furniture-making, and smithery; 11 Government, 14 Municipal and 12 Regency Schools, some with a Dutch division.

Western: Trade Schools, with three years' course, to train poor Europeans with a Lower School certificate, for such posts as foremen and engine drivers.

Two Technical Schools (Queen Wilhelmina at Batavia, Queen Emma at Soerabaja), also one Private (Semarang) with a five year course in mechanical and electrical engineering; open to all classes with the required certificate.

(ii) *Domestic Economy:*

Native: in Girls' Continuation Schools.

Western: 4 Government and 9 Private Schools, and also Private one-year courses.

(iii) *Commercial Training:*

Native: 14 schools, training for retail trade, linked up with Continuation Schools.

Western: 2 Night-Schools; 3 Lower Commercial Schools, and 1 Mulo Commercial School, corresponding to 3 years H.B.S.

(iv) *Training of Teachers:*

Many schools, both vernacular and Western.

(v) *Medicine:*

Native: Schools for medical subordinates and nurses.

Western: NIAS (*Nederlandsch-Indisch artsenschool*) to train as medical subordinates, men and women who have passed through the Mulo or 3 year H.B.S. This replaced in 1933 the STOVIA (*School ter opleiding van Indische artsen*). For dentists (*tandartsen*) there is the STOVIT (*School ter opleiding van Indische tandartsen*).

(vi) *Administration:*

Western: Schools for the native civil service, with a three-years Mulo course. These are known as MOSVIA (*middelbaar opleiding school voor indische ambtenaren*). There are also numerous courses and schools maintained by the various departments and services for the training of their subordinates.

Higher Education

Higher education of the university standard was formerly available only in the Netherlands. But in 1920 some leaders of private enterprise opened a Technical High School in Bandoeng, which was taken over by the government in 1924. The course lasts five years and corresponds to that given in Dutch technical colleges of university standing. In 1924 a Law High School was opened and in 1927 a Medical High School. In 1938 there was added a faculty of administration, the *bestuursakademie*, with a three-year course for native officers of the civil service. Since the occupation of the Netherlands in 1940, further courses have been added in arts and natural science, largely to meet the demand of students who could no longer proceed to Europe, and in part to meet the new demand for scientists in the rapidly developing local industries. The whole complex of high schools and courses under these various heads has now been co-ordinated as a University, but without any centralized buildings.

Libraries

A notable feature of the educational system in the Netherlands Indies is the Bureau for Popular Reading. This publishes periodicals and books in the vernaculars, and makes provision for translation and adaptation of European books. The object is to supply reading matter for natives who might otherwise forget what they had learned at school. The books are sold or lent out through libraries. The libraries, which contain books both in European languages and in the vernacular, are usually placed in the local school. Any one is entitled

to borrow a book on payment of a very small fee, which goes to the school-teacher as librarian. Thanks to the care and zeal with which this plan has been applied, it has achieved a very remarkable success.

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Chapter II

HISTORICAL OUTLINE BEFORE 1800

Introduction: Indian influence from the second century to the eighth century A.D.: The Sailendra Dynasty, A.D. 750-850: The Kingdom of Mataram, A.D. 850-1007: The Kediri, Janggala and Singhasari Kingdoms and the Decline of Sri-vijaya, 1007-1292: The Kingdom of Majapahit, 1292-1500: The Expansion of Islam, 1292-1500: The Portuguese in the East Indies, 1500-1600: European Commercial Rivalry in the East Indies, 1600-84: The Rise of Dutch Power in Java, 1600-84: The Consolidation of Dutch Power in Java, 1684-1780: The Growth of Dutch Rule in the Outer Provinces, 1600-1800: Administrative Organization under the Dutch East India Company: Dissolution of the Dutch East India Company, 1798: Bibliographical Note

INTRODUCTION

The guiding threads to the history of the East Indies up to the arrival of the Europeans in the early sixteenth century are, firstly, the struggle for political and commercial supremacy between Java and Sumatra and, secondly, the assimilation of Indian culture and religion. The lands bordering the Malacca strait were marked out by nature for the seat of a commercial empire, as they dominated the shortest sea route between the East and the West. In agricultural resources, however, these lands were far inferior to Java, which had the further advantage of a central position favouring political and commercial control over the archipelago. As trading vessels could avoid the exactions of revenue officers in the Malacca strait by taking a course through Soenda strait, the dominating power in Sumatra always sought to close these straits, whereas it was in the interests of Java to keep them open. After periods of fluctuating fortune, Java, in the eleventh and fourteenth centuries, gained the ascendancy in the struggle for power. It has maintained this dominant position to the present day.

The assimilation of Indian culture was a marked feature of the early history of the East Indies. At various points along the coasts the Indians founded colonies which later grew into petty kingdoms. Among the early colonists, Hinduism, possibly with a special cult of Vishnu, prevailed; then from the fifth to the eighth centuries there was a wave of Hinayanist Buddhism which later yielded place to Mahayanism and finally to Sivaism. Hinduism in its Sivaite form

was the chief religion in Java until it finally succumbed to Islam about the beginning of the sixteenth century.* The foundation of colonies lasted, possibly with long breaks, up to the eighth century and during this period the settlers intermarried with the indigenous peoples. In Java a dual society, comprising both Indian and native elements, was gradually transformed into a more or less unitary society in which both were blended; the Indian, Indo-Javanese and Javanese periods can be distinguished. In many parts of the archipelago, however, the Indians were traders rather than settlers and their influence was relatively slight, though all along the coasts it has left a permanent imprint on the social organization in the form of a territorial aristocracy outside and above the family stem.

The arrival of European traders and adventurers in the early sixteenth century marked a new and important stage in the history of the East Indian archipelago. Rival trading stations were established by the Portuguese, Spanish, Dutch, French and English principally with a view to gaining a monopoly in the spice trade. After a long and bitter struggle the Dutch succeeded in driving their rivals out of the archipelago and at the same time either destroyed or reduced to subservience most of the petty native kingdoms.

INDIAN INFLUENCE FROM THE SECOND CENTURY TO THE EIGHTH CENTURY A.D.

For seven hundred years immigrants from India settled in and traded with the lands of south-east Asia and they had a deep and lasting cultural influence upon the peoples with whom they mixed. The earliest Indian settlements of more than local importance were situated outside the limits of the East Indian archipelago in Champa (the southern part of modern Annam) known to the Chinese as Lin-I and in Kamboja (the modern Cambodia and Cochin-China), known to the Chinese as Fu-nan. Both were commercial powers and in both the state religion was Hindu. During the third century A.D. the ruler of Fu-nan took the title of 'Great King' and extended his rule over the archipelago. Such epigraphic and archæological evidence as is available supports the picture given by the Chinese historians of the archipelago as a sphere of Hindu influence with its centre in Cambodia. Hinayanist Buddhism, however, had already reached

* For a brief account of the main tenets of Hinduism, Buddhism and Islam see Appendix I.

Siam and from about the beginning of the fifth century, there was a wave of Buddhist influence in the East Indies. Stone figures of the Buddha dating from this period have been found in Java, Sumatra and Celebes. The spread of Buddhism is further attested in the Chinese records. Hinduism still predominated in some parts, while others may have become mainly Buddhist, but probably both religions were practised side by side.

The seventh century was an era of convulsive change over the greater part of south and east Asia. Indian expansion over the archipelago waned and about the same time Hinayanist Buddhism gave place to Sivaism in Java and to Mahayanist Buddhism in Sumatra. According to Chinese sources, notably the account of I-tsing's pilgrimage which took place between A.D. 671 and 692, there were two states in Java and two in Sumatra at this period. There seems to have been a kingdom in western Java, but little historical evidence relating to it is available. In central Java a kingdom, known to the Chinese as Ho-ling or Kaling in its Indonesian form, was certainly well established in I-tsing's time. It was a centre of Buddhist learning, but Hinduism also probably survived. That the Hindu religion in its Sivaite form was favoured by a dynasty ruling in Kedoe (central Java) at the beginning of the eighth century is shown by an inscription of A.D. 732 relating that a King Sanjaya had erected there 'the most miraculous shrine of Siva in the whole world'. This is the first inscription in Java with a decipherable date; it is written in the Sanskrit language but in Pallava characters. It would seem, therefore, that the foreign element had not yet been completely assimilated. If a third kingdom existed in Java at this time it probably lay in the east of the island.

The two kingdoms known to exist in Sumatra in the seventh century were Malayoe and Sri-vijaya. In the first half of this century the chief state in the island seems to have been Malayoe (Djambi), while there was another state of some importance in Bangka. Sri-vijaya, which had its capital at Palembang, came to the fore during the next fifty years. After subjugating Malayoe, Sri-vijaya became the dominant commercial power in the archipelago and maintained this position for many centuries.

The emergence of local peoples combining Indian and native elements can be traced in Sumatra, as in Java. Thus an inscription of A.D. 683 is written in Old-Malay, mixed with Sanskrit, which indicates that the authors were no longer foreigners from India, but a local people, Indo-Sumatran. In the early part of the seventh

century the Indo-Sumatrans were Hinayanist in religion, but towards the end of the century they were converted to Buddhism of the Mahayanist creed.

THE SAIENDRA DYNASTY, A.D. 750-850

The rise of Sri-vijaya is associated with the Sailendra dynasty, which conquered Bangka and extended its power over Sumatra and the Malay Peninsula. After the death of Sanjaya, about the middle of the eighth century, we find the Sailendra dynasty ruling in central Java. A new impulse was given to letters, apparently to music, and, above all, to architecture. Indian influence is most marked, which suggests that there may have been a fresh wave of immigration shortly after the establishment of the dynasty. The great Buddhist temples of Boroboedoer and Tjandi Mendoet date from this period (Plates 11, 15). Buddhism did not wholly displace Sivaism, for temples to Siva were being built in many places and inscriptions testify to its survival, notably one of A.D. 847 at Gandasoeli, written in Old-Javanese with a tincture of Old-Malay. An obvious interpretation of the leading facts is that Sivaism was the popular religion, though Buddhism was favoured by the rulers.

Outside Java, the rule of the Sailendra extended over all, or almost all, of the archipelago and possibly over Cambodia and Champa. Chinese records and inscriptions, when read together with the long series of reliefs at Boroboedoer, depict a complex political and social organization. Then, suddenly and mysteriously, the Sailendra disappear from Java and seem even earlier to have lost their hold over Cambodia and Champa, but a branch of the dynasty continued to control Sri-vijaya for many centuries.

THE KINGDOM OF MATARAM, A.D. 850-1007

The Sailendra never extended their rule over east Java, which seems to have remained independent under descendants of King Sanjaya; presumably it was they who drove the Sailendra from central Java. Already in A.D. 863 at Pereng, in the main stronghold of the Sailendra, there is an inscription in a mixture of Sanskrit and Old-Javanese, paying homage to Siva. It may be taken to mark the birth of a new power, known afterwards as Mataram from the capital founded there a few years later. From the ninth century onwards Sivaism

gathered force at the expense of Buddhism, and the rise of the Mataram kingdom may be explained as the restoration in central Java of the old dynasty and the old religion. This view derives support from the architecture of the period; the Sailendra introduced new forms, but their successors combined these with a reversion to old forms. Moreover, the substitution of Javanese for Sanskrit in the inscriptions suggests the cultivation of popular support and a growing sense of Indo-Javanese nationality. From various inscriptions written in Old-Javanese it may be inferred that the Mataram kingdom soon moved to east Java and the central part of the island lost its former political importance.

The most prominent of the kings of Mataram in this period was Dharmavamça (A.D. 985-1007). He promulgated many new laws and fostered the growth of literature, causing the *Mahabharata* to be translated into Old-Javanese. Under his rule the authority of the kingdom was extended to Bali and to a small principality in west Borneo. The acquisition of the latter was probably mainly for strategic reasons, since Dharmavamça aimed at wresting from Sri-vijaya the commercial supremacy of the archipelago.

At this period the kingdom of Sri-vijaya under the House of Sailendra held sway over the eastern coast of Sumatra and its adjacent islands, and over the Malay Peninsula. It controlled the South China Sea and its traders used to visit the ports of China. It maintained commercial contact with the kingdoms of India, while its fame reached as far west as Arabia. Sri-vijaya soon came into conflict with the kingdom of Mataram. When Dharmavamça challenged its supremacy in the tenth century, Sri-vijaya for a time was in danger of being overthrown, but later recovered sufficiently to carry out a successful invasion of Java which led to the fall of the Mataram kingdom.

THE KEDIRI, JANGGALA AND SINGHASARI KINGDOMS AND THE DECLINE OF SRI-VIJAYA, 1007-1292

After the fall of the Mataram kingdom east Java split up into a number of petty states, but in 1019 Airlangga, the son-in-law of Dharmavamça, assumed power and gradually rebuilt the kingdom. His court is regarded as one of the fountain-heads of Javanese literature, producing the first poem in Old-Javanese for which a date can be fixed. The resurgence of the former kingdom was, however, short-lived for on the death of Airlangga in about 1045 it was divided

between his two sons. The state of Janggala, centring around Soerabaja and Malang, was at first the more important, but it soon yielded place to the western principality, with its capital at Kediri (Fig. 2).

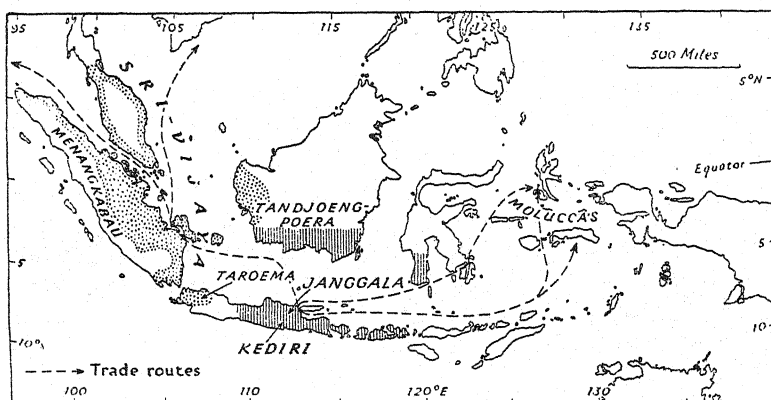


Fig. 2. The kingdoms of Sri-vijaya and of Janggala and Kediri in the eleventh and twelfth centuries

The dotted area shows the extent of the kingdom of Sri-vijaya, the shaded area that of the kingdoms of Janggala and Kediri. Of these last two kingdoms, the latter was the more powerful.

Source: Bernard M. Vlekke, *Nusantara, a History of the East Indian Archipelago*, p. 2 (Cambridge, Mass., 1943).

The Kediri kingdom, like the earlier Mataram kingdom, engaged in widespread commercial activities over the archipelago and rivalled the sea-power of Sri-vijaya. During the eleventh century Sri-vijaya was weakened by a series of wars with the Cola kingdom of south India, as a result of which Kediri came to replace the Sumatran kingdom as the chief power in the archipelago. Kediri not only controlled many of the Lesser Soenda islands, including Bali, but also exercised its sovereignty over the southern coast of Borneo and the southern peninsula of Celebes. The commercial expansion of the Javanese kingdom took place contemporaneously with the arrival in East Indian waters of increasing numbers of Muslim traders from the west. These traders, who were all loosely termed 'Arabs', though few in fact came from Arabia, were destined to play an important part in the political affairs of the archipelago (see p. 46).

In the early thirteenth century, the Kediri and Janggala kingdoms were both forced to recognize the overlordship of the princes of Singhasari, a district in the kingdom of Janggala near the modern

town of Pasoeroean. East Java was thus again united into a single state and, under the rule of the great monarch, Kertanagara (1268–1292), the whole island seems to have recognized its sovereignty. The new kingdom successfully developed its overseas trade. It continued to prosper at the expense of Sri-vijaya and in 1286, after a Javanese invasion of Sumatra, Malayoe, under the suzerainty apparently of Singhasari, replaced Sri-vijaya as the chief state in the island. Shortly afterwards, in 1292, Marco Polo visited Sumatra and Java; in the record of his journey he mentions 'the great king of Java' and his immense overseas trade, especially in black pepper and all manner of spices.

In the year of Marco Polo's visit Kertanagara met his end. The Mongols, who had lately mastered China, sent an embassy to Java for the customary tribute and invited the king to pay homage to the Mongol court. Kertanagara sent the emissary back with an insulting message tattooed on his forehead, and an expedition was despatched to punish the king. It arrived too late. Kertanagara had just been assassinated by a rebel, apparently a connection of the former dynasty. The usurper did not long enjoy the fruits of his rebellion, for the Mongol soldiers, ordered to punish the king of Java, punished the king they found there. In the confusion that ensued the son-in-law of Kertanagara seized the throne.

THE KINGDOM OF MAJAPAHIT, 1292–1500

The son-in-law of Kertanagara founded a new dynasty with its capital at Majapahit, in the Brantas valley south-west of Soerabaja. In power and splendour the Majapahit kingdom far outshone that of Singhasari and Kediri. The foundations of its greatness were laid by Gajah Mada, who acted as prime minister for thirty years from about 1330 to his death in 1364. During his period of rule, the sovereignty of Majapahit was extended over Malayoe, Borneo, the Lesser Soenda islands, part of Celebes and parts of the Moluccas. The conquest of Palembang, a successor state to the empire of Sri-vijaya, was not completed until thirteen years after the death of Gajah Mada. By the end of the fourteenth century, when the Majapahit empire was at its fullest extent, it was roughly equal in area to the Netherlands Indies of to-day (Fig. 3). Majapahit also had friendly relations with the states on the mainland of south-east Asia, from Martaban to Annam, and sent embassies to India and China. Among the chief ports were Toeban, Grisee and Soerabaja. Merchants were

held in high repute and even the nobles engaged in commerce. A description of life in Java as given by a Chinese Muslim, Ma Huan, in 1413 shows that, allowing for the lapse of time, and changes in religious ceremonial consequent on the introduction of Islam, Javanese civilization was much the same as now; modern Javanese civilization still rests on its old foundation.

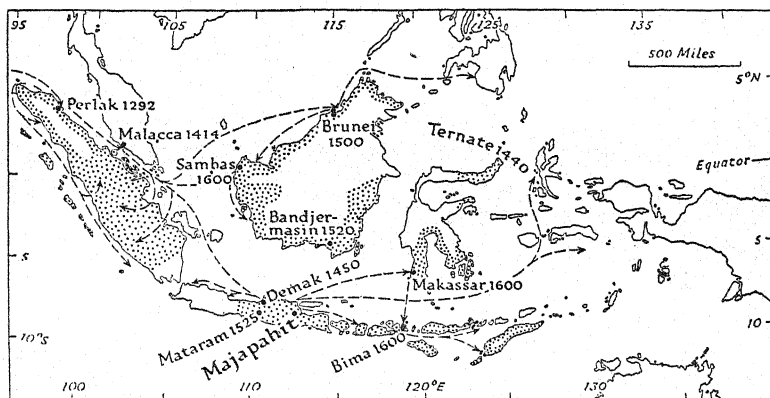


Fig. 3. The empire of Majapahit in the fourteenth century

The arrows indicate the spread of Islam; the dates refer to the year when Islam was first adopted.

Source: Bernard M. Vlekke, *Nusantara, a History of the East Indian Archipelago*, p. 55 (Cambridge, Mass., 1943).

At the time of Ma Huan's visit, Majapahit had already passed its zenith, which may be placed at about the end of the fourteenth century. In 1405 there was a dynastic rebellion and, though this was suppressed, it left the central power weaker. Other factors were contributing to its decline. The fall of the Kediri and Singhasari dynasties had been followed by a great extension of Muslim influence throughout the coastal districts of the archipelago, and the seaboard chieftains who were converted to the new faith tended to become less dependent on their Hindu suzerain. At the same time the progress of China under the Ming dynasty, and the expeditions, partly military, partly commercial, under Cheng Ho (1405-34) encroached on the commerce of Majapahit from the opposite direction. In Sumatra, the supremacy of Java had centred round its dependency in Malayoe, but, with the rise of Malacca under Muslim rule, Malayoe could no longer control the straits. Malacca was a centre of trade and propa-

ganda and both commerce and religion sapped the strength of Majapahit, while at the same time it was weakened by dynastic quarrels, and by the end of the fifteenth century many of the feudal nobles had become Muslim. In 1518 the kingdom of Majapahit was finally destroyed by the sultan of Demak who ruled the coastlands of Java from Djapara to Grisee.

THE EXPANSION OF ISLAM, 1292-1500

The propagation of Islam followed the trade routes of south-east Asia. From Gujerat in India the new religion spread first to the northern tip of Sumatra and the Malay Peninsula, then to east Java and from there to the islands of the east. In 1292 Marco Polo found Islam adopted in only one small state, namely, Perlak, in north Sumatra. The new religion must have spread very soon to the neighbouring state of Pasé where a tombstone, dated 1326, records the death of a Muslim sultan. The account of Sumatra given by Ibn Batuta, who claims to have visited the island in 1345-46, is certainly inaccurate on some points and as a whole untrustworthy, and there is no further information of importance before the report submitted by the Muslim customs official, Ma Huan, about 1430. He tells us that in the ports of Java and especially in Gresik (Grisee) there were Muslim traders from the west, and a few Chinese Muslims. That Islam had as yet barely touched Java is indicated by a tombstone recording the death in 1419 of Malek Ibrahim who, though probably a trader, survives in tradition as the first missionary of Islam.

By the middle of the fifteenth century Malacca had become the headquarters of Muslim power in the Far East and about the same time Islam reached the islands of Ternate and Tidore in the northern Moluccas (Fig. 3). In Java, however, Hinduism still prevailed, except on parts of the coast. De Brito, writing in 1514, says 'Java is a great island; it has two powerful kings; on the sea coast the Moors are very powerful'. One of these kings was the emperor of Majapahit, whose power, however, was shortly afterwards destroyed by the sultan of Demak; the other ruled over Payayaran, the western end of Java, known to the Portuguese as Soenda. At the beginning of the fourteenth century western Java had still been subject to Sumatra. Payayaran became independent about 1405, a change which probably reflects the shifting of power from Majapahit towards Malacca. In 1522 Payayaran was still Hindu and the sultan invited the Portuguese to build a fort there as a barrier against the encroachments of the

Muslims. On their arrival in 1526 they found the Muslims already in possession, the sultanate of Bantam having replaced the kingdom of Payayaran; eastern Java shortly before this also passed into Muslim hands. The extension of Portuguese influence over the archipelago was retarded and made more difficult by the spread of Islam, for, wherever it took root, active or passive hostility to the European traders generally followed.

THE PORTUGUESE IN THE EAST INDIES, 1500-1600

The Portuguese were the first European traders to sail in East Indian waters. They sought primarily to gain a monopoly of the spice trade, and as Malacca was the great market for this commodity its conquest became their foremost objective. This was achieved in 1511 by a fleet under Alfonso de Albuquerque. At Malacca the Portuguese found that spices cost five to seven times as much as in the islands where they grew. Albuquerque promptly despatched an expedition to the Moluccas. The Portuguese fleet, commanded by Antonio d'Abreu, first called at Gresik on the north coast of Java and then sailed to Banda, the chief island for the production of nutmegs. On the return voyage one of the ships was wrecked and the survivors found refuge in Hitoe (Amboina), where they helped the local chieftain to defeat a rival. Their fame reached Ternate and the ruler of this island promised them trade in return for their support. Thus, although only one ship of the Portuguese fleet returned safely to Malacca, the expedition succeeded in its object of opening up relations with the Spice Islands.

In the eastern islands of the archipelago the decline of Majapahit and the growth of Muslim influence had led to a struggle for supremacy between four small states: Djailolo, Batjan, Ternate and Tidore. Political ties were personal rather than territorial, and the ruler of each state had his adherents throughout the archipelago, as far south as Banda. Thus, in Amboina there were four parties owing allegiance severally to these four kings, and constantly at war. At first Djailolo was the most powerful, but later Ternate and Tidore came to the fore. The Portuguese visited Ternate in 1512 and were invited to found a station there. They could not take advantage of the offer, however, until 1522, and meanwhile in 1521 the Spaniards had reached Tidore. The Moluccas were near the meeting point of the spheres of influence which Spain and Portugal had marked out for themselves in the treaty of Tordesillas of 1494. An attempt was made

to settle the dispute by the treaty of Saragossa in 1529, by which Charles V sold the doubtful Spanish claims over the Moluccas to his Portuguese rivals. Arrangements made in Europe, however, had little influence on conditions in the East, for in 1537-38 the Spaniards of Tidore attacked the Portuguese in Ternate. Hostile relations continued until the end of 1545 when the Portuguese, reinforced from Malacca, drove all the Spaniards who would not enter Portuguese service out of Tidore.

Meanwhile the Portuguese had been exploring the whole archipelago. Expeditions had reached Borneo (1524), Celebes and New Guinea (1525-26) and Timor (1532). Interest in Borneo waned on finding that it produced only camphor, and in Celebes, on failing to discover gold. Outside Malacca their only important settlements were in Bantam, Ternate, Amboina and Banda. Bantam was important as commanding the strait by which vessels could escape the control exercised by the Portuguese at Malacca. Ternate was the headquarters of the spice trade, and Amboina and Banda respectively the chief sources of cloves and nutmegs. The principle of Portuguese rule, as of subsequent European empires, was to recognize a local potentate who would comply with their requirements, and to support him against his subjects and jealous neighbours; in practice it was a brutal and arbitrary tyranny tempered by assassination, and in some degree by Christianity. In 1537 a seminary was established at Ternate, the first institution of its kind in the East, and great progress was made in the conversion of the people, especially from about 1540 onwards when St. Francis Xavier was active in the archipelago. (Fig. 4). The methods of conversion were often summary, and even the priests were only too ready to condone the extirpation of those who would not accept the faith. It followed naturally that the numerous outbreaks of resentment against oppression were directed equally against Portuguese and Christians. Ordinarily these outbreaks were isolated, though sometimes they took on a more general character. Thus, in 1570, Baabullah, the ruler of Ternate, moved to fury by the assassination of his father, formed a league with all the neighbouring princes and within a few years had hemmed the Portuguese within their forts. They feebly maintained a losing struggle until in 1580 help came from an unexpected quarter. Philip II of Spain made good his claim to the throne of Portugal, and the Portuguese in the Moluccas could turn for help to the Spaniards in the Philippines. A combined garrison of Portuguese and Spaniards was still able to maintain a precarious hold over the fort in Tidore and another stood

fast at Amboina; but the power of the Portuguese was broken, and in 1600, as in 1500, it seemed that the archipelago would pass to the Muslims.

EUROPEAN COMMERCIAL RIVALRY IN THE EAST INDIES, 1600-84

The union of Spain and Portugal in 1580, which gave a new flicker of vitality to Portuguese power in the archipelago, was eventually disastrous to both countries. Up till then the products of the East, after reaching Portugal, had been distributed over Europe mainly by the Dutch. By his control over Portugal, Philip II was enabled in 1594 to close the Portuguese harbours to his rebellious Dutch subjects, who were thus left with a choice between abandoning a valuable trade or themselves venturing on the Eastern voyage. For many years the Dutch had indeed been sailing in the Atlantic Ocean and exploring the North-East Passage, while many Dutchmen had sought employment in Portuguese ships and service. Details on the navigation of the southern Atlantic and Indian Ocean were, moreover, well known for, in 1596, the Dutch geographer, Jan Huyghen van Linschoten, after spending six years in Goa, published his *Navigatio ac Itinerarium*, containing all the necessary information for the voyages to India and America. This book also revealed how slender was the Portuguese grip upon the Eastern seas. There is little doubt, therefore, that Dutch merchants would in time have found their way to East Indian waters. The action taken by Philip II in 1594 hastened but did not cause this development.

The first Dutch expedition to the East Indies was despatched by an Amsterdam company in 1595 and the successful, though not profitable, outcome of this venture led to a fever of speculation. Within less than five years ten companies had been formed, sending out fourteen fleets, comprising sixty-five ships, of which fifty-four made the return journey safely. In 1599 the Dutch were able to raise the price of pepper on the London market from three shillings a pound to six or eight shillings. This corner in pepper led to the formation of the English East India Company in 1600. Meanwhile as experience had shown that competition between the Dutch companies could only lead to disaster, they were grouped together and in 1602 received a common Charter as the Dutch East India Company. On the formation of this company all those interested in the Eastern trade were grouped into six Chambers, one for each of

the chief ports of Holland, and the Charter of Foundation was primarily a contract between these Chambers as autonomous mercantile bodies, stating the terms on which they agreed to unite with a view to obtaining from the State a monopoly of the Eastern trade. The Charter conferred on the Company many attributes of sovereignty, and in effect it became an oriental potentate. The primary aim of the Company was profit, first by trade and later largely by tribute. Only with reluctance and in order to control the trade did it extend its rule. Not until the middle of the eighteenth century, when the trade in spices was losing its importance, did it assume the privileges of sovereignty so far as was necessary to obtain a tribute in produce, and never outside its settlements and factories did it accept the responsibilities of sovereignty.

At the same time as the Dutch and English formed trading companies in the East Indies the French became interested in the Eastern trade and, after an expedition to Bantam in 1601, a French East India Company was founded in 1604. The rivalry of these companies and their common quarrel with the Portuguese and Spaniards, forms a main theme in the history of the archipelago for the next eighty years.

The first port of call for all the newcomers was Bantam, on Soenda strait for, though the Portuguese had a settlement there, they were not so firmly entrenched as at Malacca. The Dutch opened an office at Bantam in 1600 and three years later obtained a stone building which they could use as a *loge* or factory; the French established an agency in 1601 and the English settled a factory there in 1602. Although this port remained the general headquarters for some years, the Spice Islands were the main objective, and here it was necessary to dispose of the Portuguese and Spaniards. In 1599 the Dutch had obtained permission to establish factories in Banda and Ternate, and to build a fort in Amboina. Six years later they effected their first settlement by driving the Portuguese out of Ternate and Amboina. After losing Amboina the Portuguese were penned up in Malacca where they could do little harm, though remaining a potential danger until isolated by the Dutch capture of Ceylon in 1640. This enabled the Dutch to take Malacca in 1641.

The Spaniards were more troublesome. Although the Dutch managed to eject the Portuguese from Ternate in 1605, they could not withstand a strong Spanish fleet that arrived in 1606. The Spaniards settled not only in Ternate but also in their old stronghold, Tidore. In 1609, the United Provinces concluded a truce with Spain

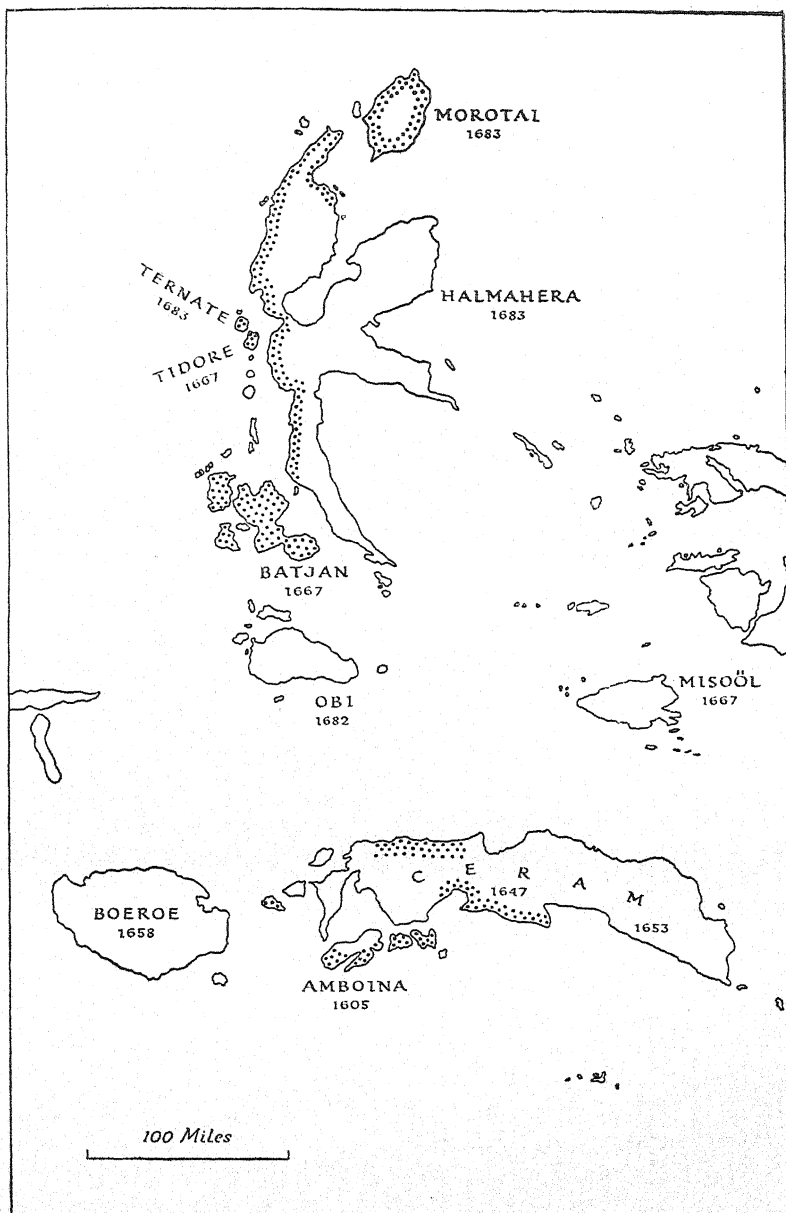


Fig. 4. The Moluccas in the sixteenth and seventeenth centuries

The dotted area shows the extent of Portuguese missionary activity. The dates give the year when Dutch sovereignty was first recognized. In the Moluccas, as in most of the other islands of the archipelago, Dutch control, however, was loose and mainly nominal until the nineteenth century.

Source: Bernard M. Vlekke, *Nusantara, a History of the East Indian Archipelago*, p. 77 (Cambridge, Mass., 1943).

for ten years, but the Spanish governor of the Philippines disclaimed all knowledge of the matter and hostilities continued. In 1613 an attack on the Spanish fort in Tidore was beaten off; in 1616 the Dutch sustained disaster in the bay of Manila and a renewal of the attack in the following year was also unsuccessful. In Ternate they found a willing ally against Tidore and the Spaniards, but there were continual difficulties until Spain withdrew from the Moluccas in 1663.

The chief rivals to the Dutch were the English who followed them round the archipelago wherever they went. In the early years of the seventeenth century the English established a factory at Bantam, opened relations with Amboina and Banda, sat down alongside the Dutch factory at Soekadana in Borneo and caused trouble in Makassar. In 1614 the English followed the Dutch to Jacatra, their new headquarters in Java. This was an open challenge to a direct trial of strength, and its significance was emphasized by the establishment at the same time of English trading posts in Sumatra, not only at Tikoe and Djambi, but at Atjeh, a vital spot in the line of communications between Bantam and the West.

The challenge to Dutch power was taken up by Jan Pieterszoon Coen, who, on his appointment as Governor-General in 1617, warned the home authorities that they must be prepared to fight.* The English were trading openly with the Spaniards and in 1617 they drove off two Dutch ships which threatened the station at Poelau Roen, off Banda. Coen retaliated by a proclamation closing Banda, Amboina and other islands of the Moluccas to the English. Just then two English fleets, of fifteen ships in all, arrived off Bantam. Coen warded off the first attack and, hurriedly collecting reinforcements, drove them out of Jacatra, where in 1619 he founded the settlement that is now Batavia. He followed up his success at Jacatra by destroying an English fleet of four ships off Tikoe, and next year turned the English out of the Banda islands.

In 1619, when the English were ejected from Jacatra, the Netherlands government in Europe concluded a treaty allowing them a share in the Eastern trade. No treaty, however, could put the English on a level with the Dutch. The Dutch company had always more ships at its disposal than the English company. Coen took full advantage of his superior strength and the tension grew until it

* Jan Pieterszoon Coen, a native of Hoorn, was appointed Governor-General when he was scarcely thirty years of age. He returned to the Netherlands in 1622, but took office again in 1627 and remained in the East until his death in 1629.

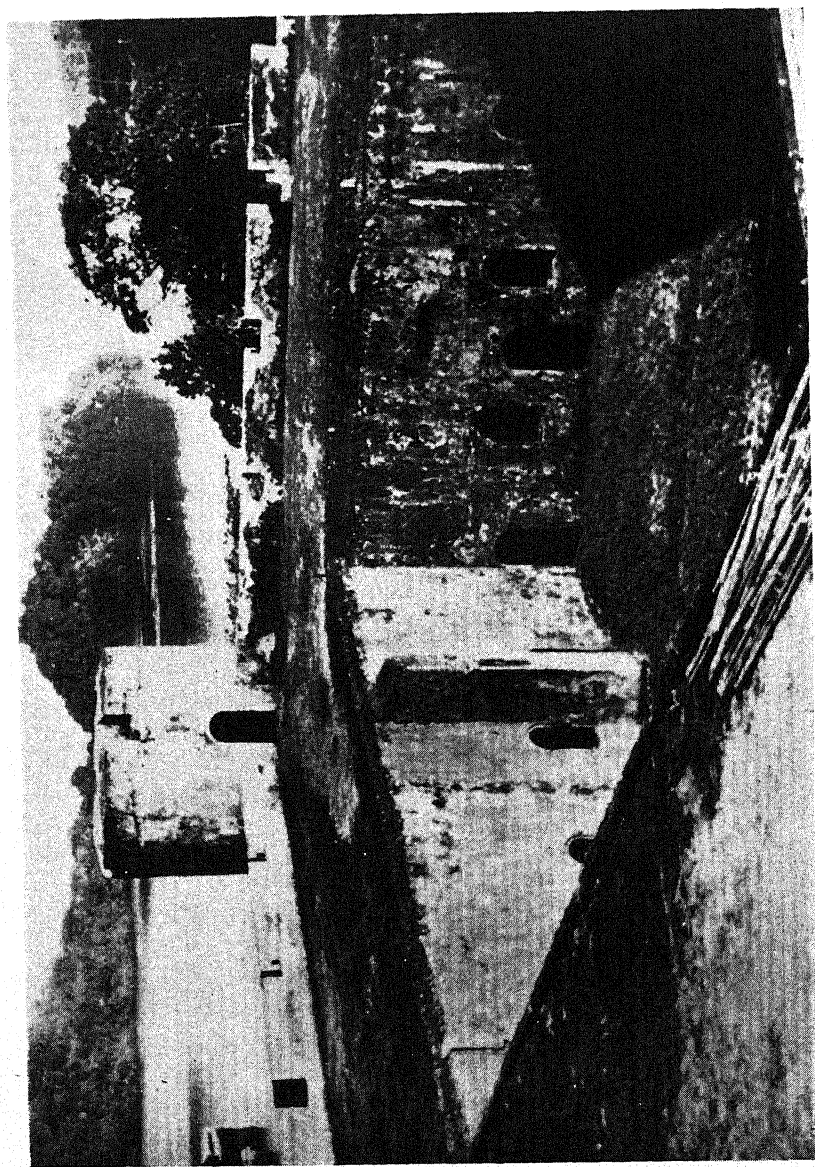


Plate 24. Fort Nassau, Bandaneira

Many forts of this kind were built by the Dutch in the seventeenth and eighteenth centuries.

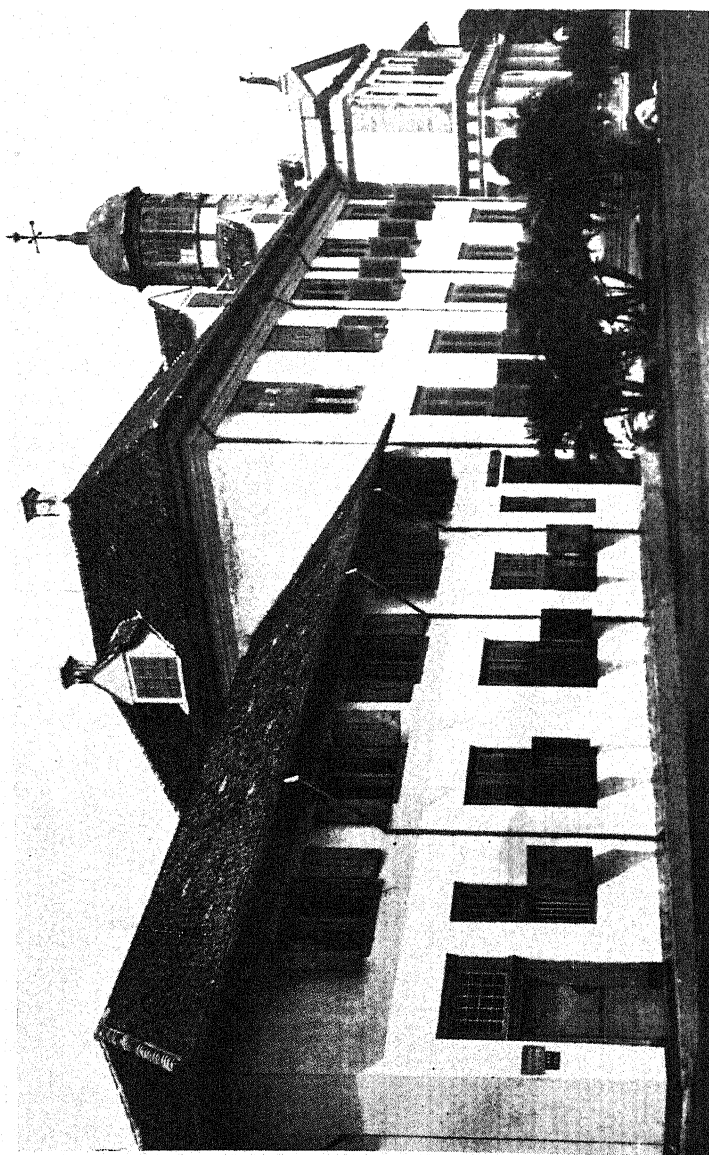


Plate 25. Town Hall, Batavia

A fine example of Dutch colonial architecture, dating from 1710.

came to a head in Amboina, where five English factories carried on their business under Dutch rule. Early in 1623, the Dutch governor charged the English with a conspiracy to seize the fort. Confessions were exacted under torture, and ten Englishmen were sentenced to death, and executed the same day. The so-called 'Massacre of Amboina' caused a great stir in England and measures were taken to obtain redress. The English traders in Bantam no longer felt secure and they all took refuge in Lagoendi, a small island in Soenda strait. In 1628 fever in Lagoendi drove them back to Bantam, but they never recovered the ground which they had lost. The French also maintained a small factory in Bantam and carried on a little trade with Sumatra, Celebes and Japan. Neither French nor English, however, could offer any serious challenge to Dutch power, and the extension of Dutch rule over Bantam towards the close of the seventeenth century caused them to withdraw from the archipelago, though in the eighteenth century the English built factories at Benkoelen, Natal and Tapanoeli in Sumatra.

THE RISE OF DUTCH POWER IN JAVA, 1600-84

On account of its favourable position Java was selected by each of the European trading companies as the main base for their activities in the archipelago. As already mentioned, the Dutch established a station at Bantam in 1600, but when the English and French set up as rivals here they determined to extend their influence to other places in west Java. At that time the ruler of Jacatra, a small province bordering on Bantam, was ambitious of gaining independence, and hoped for Dutch assistance. In 1610 he granted them a site, but would not allow them to build a fort unless they would withdraw from Bantam. The Dutch, however, wanted a footing in both places so as not to depend wholly upon either. The negotiations dragged on and were rendered more delicate by the arrival of the English in 1614. The vigorous policy of Jan Pieterszoon Coen, which led to the eviction of the English from Jacatra and to the foundation of Batavia in 1619, has already been described (see p. 52). The foundation of Batavia marked a new stage in the rise of Dutch power. In order to make this base secure, the Company naturally sought to build up buffer states which would admit its suzerainty and to reduce independent states to a position of dependence. This extension of Dutch political activity in Java took place contemporaneously with increased Dutch activities in the other islands of the archipelago (see p. 59).

After the conquest of Jacatra (Batavia) the Dutch claimed authority over a strip of land from the north to the south of Java, but in fact it did not extend beyond the environs of Batavia. For some years they were hard pressed to hold their own against Bantam and Mataram, the two Muslim states which had been formed in the early sixteenth century. Bantam held the west of Java and Mataram the middle and east; between them lay Cheribon and Preanger, to which both laid claim, and Krawang, which was not effectively ruled by either. The ruler of Bantam resented the loss of Jacatra and the fall of revenue which followed the withdrawal of the Dutch factory in Bantam. He attacked the Dutch in 1622 and they replied by blockading his capital. A new turn of events occurred when in 1625, Sultan Agoeng, the ruler of Mataram, after conquering Madoera and Soerabaja, assumed the style of Soesoehoenan, or Emperor. His new power and new pretensions placed the Dutch in a critical position. Agoeng was not unwilling to recognize Dutch claims to territories which they had gained at the expense of Bantam, if they would recognize him as overlord and help him subdue that state. These conditions the Dutch refused, as their policy was to hold a balance between Bantam and Mataram, and, after an unsuccessful attack by Bantam on Batavia, the Dutch came to terms with Bantam and agreed to re-open their factory. They were only just in time, for in 1628 and again in 1629 Mataram delivered ferocious attacks on Batavia which they were barely able to withstand. Meanwhile the traders in Bantam were taking advantage of the difficult position of the Dutch to encroach on their monopoly of the spice trade. From these dangers the Dutch were delivered by the capture of Malacca in 1641 which weakened Java by cutting off its trade. Two years before this occurred, however, Bantam had agreed to stop trading with the Moluccas. Agoeng, the Soesoehoenan of Mataram, vainly sought help from Bantam, from the English, and from Palembang; but his attempts to raise a combination against the Dutch were ended by his death in 1645. His successor, Amangkurat I, was of milder temper and when he promised to forbid trade with the Moluccas, except under a Dutch pass, the Dutch agreed to recognize him as suzerain and to help him if attacked.

For nearly a quarter of a century after the agreement of 1646, the Dutch had little serious trouble with Mataram. Then in 1669 there was an influx of refugees from Makassar into both Bantam and Mataram. Amangkurat I, the Soesoehoenan of Mataram, had earned the general hatred of his subjects by arbitrary and oppressive rule

and they were easily incited by the refugees to rebel against him. He called on the Dutch for help under the agreement of 1646, and they complied all the more readily because the rebellion had cut off the supply of rice from east Java on which Batavia depended. During the confused operations Amangkurat I died, and there was a dispute as to the succession. The rightful claimant, Amangkurat II, was wholly dependent on Dutch support, and they took advantage of it by insisting on rigorous terms. He granted them Krawang and part of Preanger, thus enlarging their territory to the south coast, and also Semarang and its environs; he also mortgaged as security for the war costs all the ports east of Batavia on the north coast of Java, and conceded various trading privileges, including a monopoly of the import of Indian and Persian manufactures and of opium. Thus, when in 1680, the Dutch succeeded in placing him on the throne, they were in effect masters of the whole of central and east Java.

The settling of affairs with Mataram in 1680 left the Dutch free to take measures against Bantam, which they did so effectually that Sultan Abulfatah declared war. In the following year, after a palace revolution, he was succeeded by his son, who was well disposed to the Dutch and promptly made peace. Peace with the Dutch, however, bred trouble with his own subjects who rose against him. The Dutch came to his assistance and in 1682 suppressed the rebellion. The sultan in return undertook to evict all foreigners, except the Dutch, who were granted a monopoly of the export of pepper and the import of manufactures into Bantam and its dependency, the Lampoeng district of Sumatra; further, in 1684, he forewent all claims on Cheribon. Thus, by 1684 the Dutch stood out as the chief power over the whole of Java.

THE CONSOLIDATION OF DUTCH POWER IN JAVA, 1684-1780

The sultan of Bantam, who had succeeded to power in 1681, stood by his agreement with the Dutch, whose position grew stronger with the lapse of time. Bantam, moreover, was losing much of its former importance by the silting up of its river, so that it could no longer compete with Batavia in trade. In 1734, there succeeded a new sultan, wholly under the influence of a wife who aroused general hatred. By promising large concessions, she induced the Governor-General in 1747 to recognize one of her relatives as heir-apparent, and in the following year, when the sultan went mad, she was appointed 'Regent on behalf of the Company'. Her oppressive rule

caused a rebellion, and the Dutch seized the occasion to substitute as regent a younger brother of the sultan. For some months the issue remained doubtful, and in 1751 the rebels, supported by the English in Benkoelen, even threatened Batavia. On the abdication of the sultan in 1752, the Company recognized the lawful claimant as his successor and peace was restored. The new sultan acknowledged himself a vassal of the Company, and Bantam gave no further trouble.

The course of events in Mataram was very different. Amangkurat II, the Soesoehoenan who had been placed on the throne by the Dutch in 1680, soon turned against them, and six years later attacked some troops sent to request the due observance of his contract. This was not thought sufficient ground for breaking off relations, with the consequent loss of trade, but tension continued until the death of Amangkurat II in 1703. The lawful heir would not confirm the existing contracts with the Dutch, who therefore gave their support to a rival claimant and thus became involved in the first Javanese succession war. By 1705 they were able to place their candidate on the throne, though hostilities did not cease until 1708. As a reward for their services, Pakubuwana I, the new Soesoehoenan, abandoned all his claims on Cheribon, and ceded the rest of Preanger and the eastern half of Madoera; moreover, as compensation for their war expenditure, the Company were allowed to demand produce from the subordinate chieftains in Mataram, either free of cost or on a nominal payment.

Political affairs in Mataram were far from being settled. The new Soesoehoenan, as an unlawful usurper, who had gained his throne by alliance with the infidels, found himself dependent on them to maintain it. There were repeated outbreaks in which the Dutch troops intervened, and in 1719 the death of Pakubuwana I was the occasion for the second Javanese succession war which lasted till 1723. Ten years later the Company claimed as their reward a tribute of free rice and the suppression of coffee-planting in Mataram, so that they could enjoy a monopoly over this crop. These oppressive terms did not favour good relations, and the secret discontent broke out into open hostility when the Dutch found themselves in difficulties with the Chinese.

The Chinese had been trading in Bantam long before the arrival of the Dutch, and in Batavia the Dutch had encouraged them as 'an industrious, diligent and unarmed people'. They rapidly increased and in the eighteenth century the number was estimated at not less than a hundred thousand. Many of these the Company in 1734

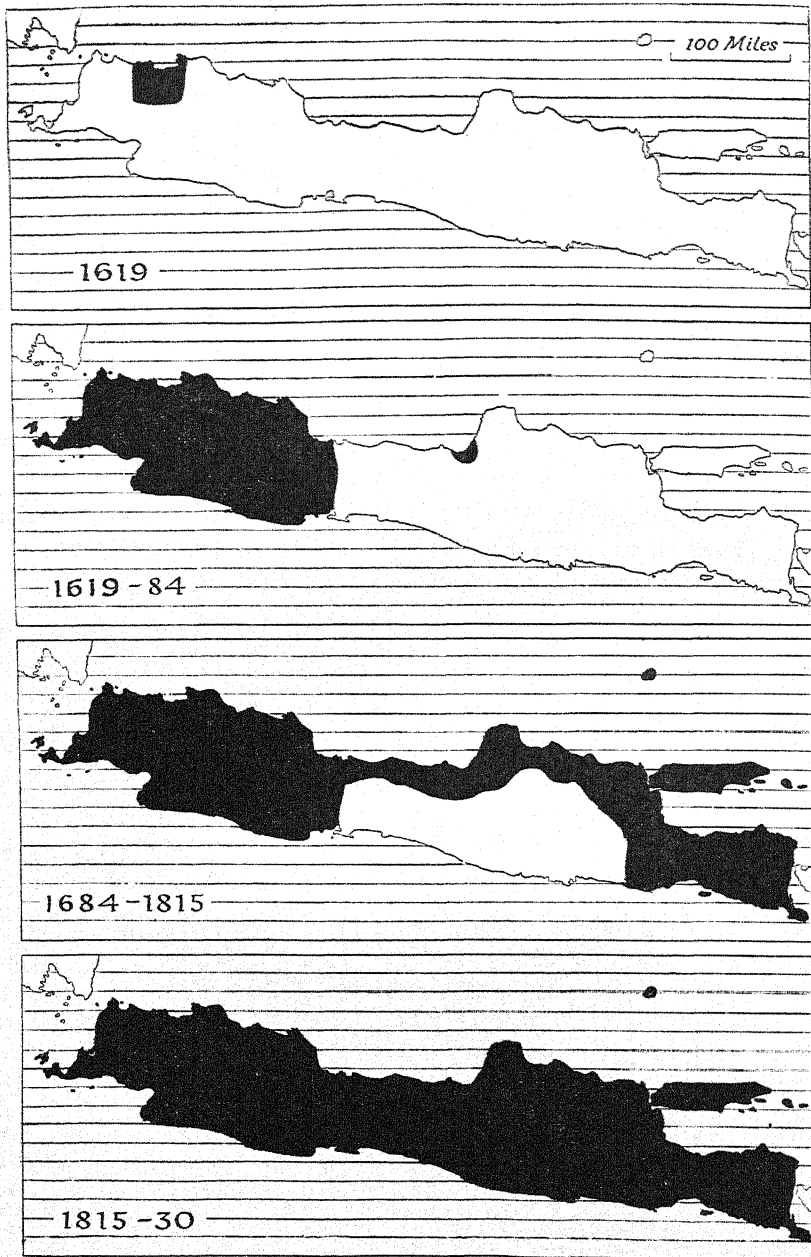


Fig. 6. Dutch acquisition of Java

Source: (1) *Atlas van Tropisch Nederland*, plate 10 (Batavia, 1938); (2) Bernard M. Vlekke, *Nusantara, a History of the East Indian Archipelago*, p. 153 (Cambridge, Mass., 1943).

Meanwhile the concessions of the Soesoehoenan of Mataram had stirred up his more influential subjects to revolt. Five of his brothers ravaged the country with armed bands, and still more powerful was a nephew, known subsequently as Mangkoe Negoro. In 1746 they were still further incensed because the Soesoehoenan ceded Tegal and Pekalongan and alienated to the Company some of his customary dues; the Company in return wrote off his debts, promised a yearly subsidy, and acknowledged a favourite son as his successor. This last condition was fatal, for it precipitated the third Javanese succession war (1746-51). Even after the Company had placed their client on his throne trouble continued, and in 1755 the Soesoehoenan was induced to acquiesce in the division of Mataram into two states, namely, Soerakarta, the ruler of which was to bear the title of Soesoehoenan Pakubuwana, and Jogjakarta, which was allotted to an uncle as an hereditary vassal of the Company, with the title of Sultan. Both these states still exist. The claims of Mangkoe Negoro still remained unsatisfied, until in 1757 he obtained recognition as a vassal of the Soesoehoenan over the territories which since then have been known by his title. This brought the whole of Java under Dutch rule, direct or indirect, though the native states of Soerakarta, Jogjakarta, and Banjoemas were not finally brought under subjection until the third decade of the nineteenth century (see pp. 83-4 and Fig. 6).

THE GROWTH OF DUTCH RULE IN THE OUTER PROVINCES, 1600-1800

The growth and consolidation of Dutch rule in Java in the seventeenth and eighteenth centuries was paralleled by an extension of their control over the rest of the East Indian archipelago. By about the middle of the eighteenth century only the two islands of Bali and Lombok remained free from their authority. Everywhere, except in Java, however, this authority was limited to the coastal areas, though the Dutch held nominal if not actual control of the interior of the islands.

Sumatra

For nearly a century before the capture of Malacca by the Dutch in 1641, the state of Atjeh in the north of Sumatra held political and commercial sway over a large part of the island and was at the summit of its power in the first quarter of the seventeenth century. Its glory soon waned, however, for in the same year as the capture of Malacca the sultan of Atjeh granted the Dutch a monopoly of trade along the

west coast and in 1649 approved fixed rates for the exchange between imported manufactures and pepper. The sultan, moreover, could no longer control his provinces, which included a large part of the east and west coasts of Sumatra (Fig. 7); as these provinces declined to

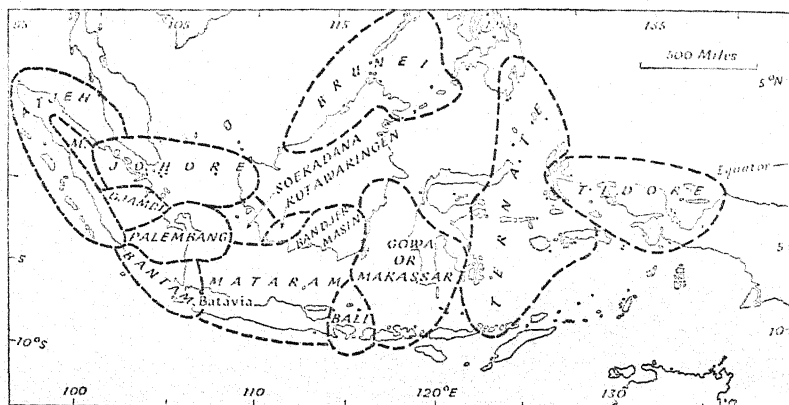


Fig. 7. The principal states in the East Indies in the seventeenth century
M. The state of Menangkabau.

Source: Bernard M. Vlekke, *Nusantara, a History of the East Indian Archipelago*, p. 136 (Cambridge, Mass., 1943).

facilitate Dutch trade, the Dutch blockaded Atjeh and in 1659 the sultan granted them a monopoly in all his ports and half the tin from Perak. The sultan was unable to enforce these arrangements, and the Dutch further undermined his power by dealing directly with the local rulers. The states of the west coast, Perak, and finally in 1669, Deli, regained their independence, and Atjeh was reduced to its old boundaries. For the next two centuries, although there was no open war, Atjeh showed its resentment by trading so far as possible with the British, and no Dutch ship could approach Atjeh under its own flag without danger of attack.

Negotiations with the states of the west coast led to the conclusion of the treaty of Painan in 1663 by which the local heads placed themselves under Dutch protection against Atjeh. Two years later a post was stationed at Tjinkoe island, but transferred afterwards to Padang, the port for the state of Menangkabau, which for many centuries had held a loose control over part of the western mountain region. Padang remained a liability rather than an asset and when the British founded a station at Benkoelen in 1714 all trade gradually passed into their hands. So little importance did the Dutch attach to Padang that they

acquiesced in the establishment of British settlements at Natal in 1751 and at Tapanoeli in 1755. Then in 1778 and 1793 they withdrew their posts from Baroes and Airbangis because trade had ceased.

In south Sumatra the Lampoeng district belonged to Bantam, and the pepper from that region was an important item in the tribute paid by Bantam to the Dutch. This gave the Dutch an interest in maintaining peace and order there, and in 1738 a fort was built at Toelangbawang as a protection against raids from Palembang. In 1763 another was built at Semangka with a view to ejecting the English from Benkoelen. By this time, however, the Dutch had lost their former energy, and the sultan of Bantam had no independent power. The Lampoeng district degenerated into a nest of pirates, and in 1793 both posts were withdrawn.

From the earliest days the Dutch traded intermittently with Palembang, and in 1640 the ruler, when threatened by both Bantam and Mataram, sought their aid. Largely through fear that otherwise he might turn to the English, the Dutch agreed to establish a stronghold in the capital, a project subsequently abandoned. Closer acquaintance with the Dutch inclined the sultan more favourably to Mataram, and the Company therefore compelled him in 1642 to grant it a monopoly of pepper in return for a treaty of mutual defence. The Dutch exercised their rights so stringently as to arouse resentment, which broke out in 1657 in an attack on two of the Company's ships. This led to war and, after a stiff resistance, to the conquest of Palembang in 1659. A new treaty confirmed the monopoly and granted them a strip of territory on which they built a fort overlooking the royal palace. After that relations were friendly. In 1681 the Dutch helped the sultan against Djambi, and were rewarded with a monopoly of the import of opium and the grant of jurisdiction over all foreigners. In 1722 the Dutch again helped the sultan, this time against a local rebellion, and received a monopoly of the tin from Bangka which, together with Billiton, had accrued to Palembang by marriage. The monopoly of tin was confirmed in 1755. As Dutch power declined, the smuggling of pepper and tin increased, and the settlement gradually lost all its influence.

Further north the Dutch, in the interest of the pepper trade, maintained relations with Djambi, for the most part friendly, from 1616 onwards. In 1724, however, they withdrew from this kingdom in consequence of an attack on their post at Moearakompéh. Along the coast north of Djambi there were numerous petty states, nominally subject to Siak, which was itself in name a dependency of Johore.

In 1745 the ruler of Johore, in return for Dutch support against the Boeginese, surrendered to the Company his claims over Siak. The Dutch, however, took little interest in their new possession until forced to do so by the intervention of Boeginese pirates, who were a serious threat to the security of traffic and to the straits. After a prolonged struggle which ended with the occupation of the country in 1761, the Dutch were content to maintain relations, generally friendly, with a succession of local rajahs.

The Riouw archipelago, like Siak, was formerly subject to Johore. The native rulers had never forgiven the Portuguese for robbing them of Malacca, and were among the first to welcome the Dutch. This friendship with 'their oldest ally' lasted even after the Dutch ousted the Portuguese from Malacca, but in 1699 the death of the sultan was the occasion of one of the usual disputes over the succession. The Boeginese pirates intervened and placed a nominee on the throne, on the condition that he would appoint their leader as his viceroy. In 1719 the seat of the kingdom was transferred from Johore to Riouw. At length in 1745 the sultan appealed to the Dutch for help in shaking off the Boeginese yoke. No action was taken, however, until 1759, when the Boeginese viceroy seized Selangor, one of the tin-producing areas, declared himself independent, and besieged Malacca. He was defeated and soon afterwards sought reconciliation with the sultan.

Borneo

In the early seventeenth century the Dutch East India Company tried to open up a trade in diamonds through relations with Sambas and Soekadana, the two chief states of west Borneo (Fig. 7). When the English settled in Soekadana in the middle of this century the Dutch again intervened, with the unintended result of strengthening the Boeginese pirates. For a hundred years nothing more was attempted, and all the coastal states remained dependent on the Boeginese. But in 1778 the Dutch recognized as sultan of Pontianak an Arab who had recently founded a state there, and helped him to maintain his position. This attempt to counter the influence of the Boeginese was ineffective and, though in 1788 the sultan of Bantam ceded to the Company his rights of suzerainty over the states along the seaboard, three years later the Dutch abandoned the whole coast, which had never been other than a burden.

South Borneo offered greater attractions to the Dutch because of its pepper. Here they found a powerful native state, the sultanate of

Bandjermasin, which claimed suzerainty over the petty states all along the east coast. The Dutch began trading there in 1603, but four years later the natives attacked a Dutch ship lying at the quay and massacred the whole crew. As a reprisal Bandjermasin was laid waste in 1612, and its sultan took refuge at Martapoera where he founded a new capital. Trade was resumed in 1635, when the sultan gave the Company a monopoly of the pepper trade. As usual, attempts to enforce the monopoly aroused resistance and resentment. In 1638 rebels attacked the Dutch factory at Bandjermasin, and slew all the residents, numbering sixty-four; a month later loyalists massacred some forty Dutch at Kotawaringen. Twenty years later Bandjermasin and Kotawaringen sought for reconciliation and the Dutch resumed trade. In 1660 a new contract was arranged, followed in 1664 by a new grant of the pepper monopoly. In fact, however, most of the pepper went to the English, and in 1669 the Dutch withdrew. When relations were resumed in 1733 the Dutch were stronger and Bandjermasin weaker. Traffic in pepper with the English and Chinese was still rife, and to quash it, the Dutch established a settlement at Bandjermasin, protected by a fort at Tabanio on the coast. Here they remained until the end of the century.

Celebes

On the arrival of the Dutch, Makassar was the main emporium for spices, and had largely taken the place formerly occupied by Ternate. In 1609 the Dutch obtained permission to establish a factory there, but the local merchants soon learned that the newcomers were formidable rivals and when the concession expired in 1618 it was not renewed. Henceforth relations were in general hostile. In proportion as the Dutch gained control over Ternate so did its dependent states come under the influence of the Gowa kingdom with its capital at Makassar; by 1640 it ruled over Manado, and the islands of Boetoeng and Boeroe; the state of Boni paid tribute, and Salajar, Soembawa, and part of the east coast of Borneo were within its sphere of influence (Fig. 7). Over all this area the Dutch claimed a monopoly of trade by virtue of its contract with the former suzerain, Ternate, and the rivalry between the Dutch and Makassar could be settled only by a trial of strength. In this conflict the people of Makassar looked for support, first to the Portuguese and Spaniards, and later to the English.

The local outpost of the Dutch was in Boetoeng, a large island off the south-east coast of Celebes. After a series of minor incidents the

Dutch blockaded Makassar in 1636, but the treaty of peace in the following year made little change in their relations. The Dutch found allies among the dependencies of Makassar, notably Boni, and with their help finally broke the power of Makassar, by forcing it to accept the Bongaya Contract. On this arrangement the Company took possession of Makassar and the adjacent coast and obtained a monopoly over European and Chinese exports. Further, no other Europeans were allowed to trade there. At the same time the states formerly subject to Gowa were required to enter into an alliance with the Dutch, and to accept Dutch arbitration in their mutual disputes. The Contract was originally accepted in 1667 and, after an attempt to break it, confirmed in 1669. This marked the downfall of the Gowa kingdom, though Makassar still remained commercially important.

The Bongaya Contract did not prove wholly to the advantage of the Dutch. Exiles from Makassar stirred up trouble in Bantam and Mataram (see p. 54), and the Boeginese merchants, being shut off from lawful trade, took to piracy, with such effect that for many years they dominated the Riouw archipelago and the land on both sides of the southern entrance to the Malacca strait, as well as the west coast of Borneo (see p. 62). Over the whole of this region strong pirate colonies defied the Dutch. Moreover, Boni, after gaining its independence by help of the Dutch, turned against them, and in 1739 besieged them in Makassar. They were driven off but never effectively subdued and, although the Dutch remained in Makassar, it was for strategic rather than commercial reasons.

The Minahasa region was the only other part of Celebes where the Dutch played an important part. During the first half of the seventeenth century it was harassed by Ternate and the Spaniards, and appealed to the Company for help. In 1657 the Dutch came to its aid and established a post at the capital (Manado), with the result that three years later the Spaniards left for good. Contracts with the local chieftains were arranged in 1679. By this time the claims of Makassar had been settled by the Bongaya Contract, and in 1683 the sultan of Ternate was compelled to forego his pretensions to suzerainty. From that time onwards to the present day, close and friendly relations have been maintained between Minahasa and the Dutch.

Moluccas and the Lesser Soenda islands

The course of events in Amboina, Banda, Ternate and Tidore has been traced in outline up to the evacuation of the Moluccas by the Spaniards in 1663 (see p. 52). After that the sultans were no longer

able to withstand the Dutch and the sultanates lost their importance. Moreover, the French and English began to cultivate spices in their own colonies and, especially during the second half of the eighteenth century, the Dutch monopoly in the Moluccas was of little value.

Ceram was formerly divided between Ternate and Tidore; the western half, held by Ternate, was ceded to the Dutch in 1647, and the eastern half was conquered from Tidore in 1653. The Company succeeded also to the indefinite claims of Ternate and Tidore over Halmahera and the coast line of New Guinea. They further claimed the Aroe and Kai islands in 1606 by right of discovery, and Tanimbar on the same ground in 1639, but they did little to prosecute their claims beyond entering into agreements with the chieftains, which they rarely attempted to enforce.

The Timor archipelago where the Portuguese had many settlements was attractive for its sandalwood. Their headquarters was a fort on Solor, which the Dutch captured in 1613. Thereupon the chieftains on the neighbouring islands and in west Timor joined them in evicting the Portuguese, so that before the end of the year the Dutch were able to establish a post at Koepang. The chieftains were required to accept the Dutch monopoly of trade, but this was so insignificant that it caused no trouble. Here, as elsewhere, Ternate was compelled to abandon its claims in 1683. From time to time the Portuguese in eastern Timor disturbed the peace, but in 1749 an attack on Koepang was defeated with an ease that justified the Dutch in disregarding their hostility. This victory strengthened Dutch prestige and enabled them to insist on more favourable contracts with the chieftains on Timor, Roti, Solor, Soembawa and Sawoe. Soembawa belonged to Gowa, one of the chief states of southern Celebes, until 1667 and in 1674 was forced to accept the Bongaya Contract (see p. 64). It was a part of this arrangement that Lombok should acknowledge both Soembawa and the Company as suzerains, but in fact both Lombok and Bali remained practically independent of Dutch authority.

ADMINISTRATIVE ORGANIZATION UNDER THE DUTCH EAST INDIA COMPANY

Outside Java, the Dutch East India Company made no attempt to exercise control over the people; it left them under the native chieftains, who were entirely independent, except that they had to furnish such products as the Dutch might require. Even in Java, the native chieftains were allowed to rule their people in their own way, though

they were gradually brought under control for the purpose of exacting tribute. Batavia was the headquarters of the Governor-General, who was in immediate control of Java. Outside Java, there were five Governments*: Ternate, Amboina and Banda from 1617; then, as conquered, Malacca and Makassar. At stations where the Company had no territorial possessions, the chief officer was either a Director, Commandant or Opperhoofd; but the representatives in the native states, and subsequently other officers in direct relations with native authorities, came to be known as Residents.

In Java, one of the most difficult problems which the Company had to face was the administration of justice. In respect of Europeans, the chief officer everywhere had civil and criminal jurisdiction; but in respect of the natives the function of all officers was in general, purely commercial. Thus, from the first there was a dual system of administration, with Dutch law for the Europeans and native justice for the people, in separate courts; the Chinese and other foreign orientals were placed under headmen of their own people. Everywhere, as a matter both of convenience and profit, the rule of 'like over like' was adopted.

To this general practice there were two exceptions. Firstly, in Batavia and its environs, there was not only a Supreme Court with jurisdiction over servants of the Company, but also a Court of Aldermen (*Schepenen*) with jurisdiction over other Europeans and also over native and Chinese residents. All these courts administered Dutch law with certain local modifications. Secondly, in Amboina, from very early days, a tribunal under a European president took cognizance of native cases; this was the first native court or *landraad*. From 1746 there was another *landraad* in Semarang, where the governor of north-east Java and a bench of native dignitaries disposed of important cases, chiefly those bearing on the interests of the Company; this court was directed in 1747 to apply native law, so far as consonant with European ideas, and shortly afterwards certain treatises on Muslim and Chinese law were recognized as authoritative. There is mention of a similar court in Cheribon. In the environs of Batavia and the adjacent uplands of Preanger, a Commissioner for Native Affairs gradually acquired extensive powers including judicial authority in certain cases.

To this extent the government exercised direct rule. But that was exceptional. Elsewhere, it ruled indirectly through native dignitaries,

* Outside the East Indies there were three Governments of the Company—Coromandel, Ceylon and the Cape of Good Hope.

known in Java as regents. In the Preanger district, the regents were at the same time both servants of the Company and petty feudal lords; in the coastal districts from Tegal to Besoeki the regents were vassals of the Company, as they had formerly been vassals of Mataram; in Bantam, Cheribon and Madoera, the sultans could boast a fictitious independence; and in Soerakarta and Jogjakarta, the princes, though formally independent, were in subordinate alliance with the Company. Thus, there was a gradation of control from direct rule in Batavia to a loose suzerainty in the native states; but the normal unit of administration was the regency.

The regents had to obey all orders by the resident or other local representative of the Company. From 1706 the Company reserved the right of appointing the subordinate officers of the regent, and in practice ordinarily appointed his chief executive officer, the *buitenbepatti*. From about 1750, there was a growing tendency to encroach on the judicial and other powers of the regents, but so long as they complied with requirements for supplies, they were left usually to rule as they liked, strong in the support of the Company if their high-handedness should cause unrest. This quasi-feudal nobility administered the possessions of the Company under the supervision of its European servants.

On one side of native life there was a gradual encroachment by the Company. In 1681 the police sergeant at an outpost was charged with supervising the cultivation of produce due to the Company and in course of time this practice was extended. The military and police duties of such officials were overshadowed by their civil functions as overseers (*opsieners*) of produce. During the last quarter of the eighteenth century there were usually three or four of these 'coffee-sergeants' in the Preanger. Before long they began to keep an eye on the general administration of the regents and to report their misdeeds.

By the system of indirect rule the Company was able to evade the responsibilities of sovereignty and to concentrate on making a profit. Its income, as originally conceived, came from trade, but as soon as it gained power, trade gave place to tribute. In the treaty with Mataram in 1677-78 the Soesoehoenan promised to supply 4,000 measures of rice annually at the market price; a little later the sultan of Bantam was required to deliver all the pepper in his realm at a fixed price per pound. About the same time the Preanger regents were required to supply free of cost certain quantities of pepper, indigo and cotton yarn. Thus arose the system of taxation by Forced Deliveries and Contingencies. Forced Deliveries were payments in

kind made under compulsion, but nominally on an economic basis; they were tribute disguised as trade. Contingencies were tribute undisguised, except that the payments were made in kind and not in cash. In practice, however, there was no distinction between these two forms of revenue, which together formed the bulk of the Company's income. Among other sources, the most lucrative was the farming of tolls and lands, mainly to the Chinese. The natives were also liable to render compulsory services, which may be regarded as taxation in labour instead of in money. The comparatively small amount of revenue collected in money came mostly from Europeans, who alone were subject to direct money taxes and were the chief contributors under most heads of indirect taxation. The general rule was that the Europeans paid taxes, and the natives furnished produce or personal service.

DISSOLUTION OF THE DUTCH EAST INDIA COMPANY

The Dutch East India Company was a posthumous child of the sixteenth century, when the merchant adventurer went armed and trade in foreign seas was inseparable from war. It grew up in the seventeenth century, the age of mercantilism, and in 1693 its profits reached a maximum. Its prosperity continued during the eighteenth century, though there was a change in the character of its trade. Spices, other than pepper, declined in importance; coffee, one of the crops introduced by the Dutch, and tea were the chief exports. There were also considerable exports of sugar and indigo from Java and of camphor and cutch from the Outer Provinces. The trade in China tea was as large as that in coffee, if not larger. The imports were cloth from Coromandel, porcelain from China, and European goods for the Company and its servants. The native market was neglected, partly because the ships were few and small and had no cargo space for cheap goods.* Despite the continuance of its trade the profits of the Company declined. In the last half of the eighteenth century it seemed outwardly as strong as ever; dividends were still paid regularly and the shares were more than double their face value. But inwardly it was rotten. The dividends were being paid out of capital or loans, while the servants of the Company were waxing rich. From top to bottom corruption was rampant. In the accounts no distinction

* The vessels of the Company sailed in fleets, usually three a year. From 1602-25 the number averaged ten; from 1625-70 the average was twenty-two and from 1670-1750 it was twenty-nine. From 1750-80 the average number fell to twenty-six, but the ships were larger and mostly over 1,000 tons.

was drawn between the political and commercial charges, and the defective system of accountancy concealed both the corruption and the loss that it occasioned.

From 1770 onwards the Company was threatened with bankruptcy and on the outbreak of war with England in 1781 its position became so critical that one of the six Chambers, that of Amsterdam, had to ask for help from the Netherlands government. The debt increased annually and in 1783 the Company ceased to pay dividends. In 1790 the State, now the chief creditor, appointed a committee to recommend what course should be adopted. Recovery still seemed not impossible until the wars of the French Revolution struck a fresh blow at trade. In 1792, the Jacobins declared war on the United Provinces and their invasion of the country in 1795 was the occasion for a revolution which gave power to a National Assembly, forming the Batavian Republic. Under the new constitution the State was to take over all the possessions of the Dutch East India Company and in 1798 the Company was dissolved.

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Chapter III

HISTORICAL OUTLINE, 1800-1939

Introduction: Colonial Policy of the Batavian Republic, 1795-1806: Administration of the East Indies under Daendels, 1806-10: British Rule under Raffles, 1811-16: Restoration of Dutch Rule in Java, 1816-24: Dutch Rule in the Outer Provinces, 1816-24: The Anglo-Dutch Treaty of 1824: The Java War, 1825-30: Java in the period 1830-70: The Outer Provinces in the period 1830-70: The East Indies under the Liberal System, 1870-1900: The Subjugation of Atjeh, 1873-1900: Political Events in the Outer Provinces, 1900-10: Growth of Nationalism, 1900-14: Administrative Changes, 1900-39: Growth of Political Parties and of Nationalist Movements, 1914-39: Relations with Japan, 1918-39: Bibliographical Note

INTRODUCTION

The dissolution of the Dutch East India Company in 1798 is an important dividing line in the history of the East Indies. Since the end of the seventeenth century the Dutch East India Company held a virtual monopoly in the archipelago, having successfully overcome its Portuguese, French and English rivals. The outbreak of the French Revolutionary Wars disrupted European commerce and led to the downfall of the Company already weakened by corruption, and in 1798 the whole of its possessions and capital were handed over to the government of the Netherlands. From the beginning of the nineteenth century till the present day the East Indies have formed a part of the empire of the Netherlands and their development has been in the interests partly of the State and partly of the native population, rather than in the interests of any single private commercial enterprise.

COLONIAL POLICY OF THE BATAVIAN REPUBLIC, 1795-1806

On the collapse of the Dutch East India Company the administration of Dutch affairs in the East was entrusted to a council for Asiatic affairs. The transfer of sovereignty to the State called for new methods of administration. At first the problem was treated wholly as one of trade, and the general opinion was that the East Indies should be managed for the profit of the State, as formerly it had been managed for the profit of the Company. But this view was sharply challenged by two schools of thought imbued with the new

French doctrines of government; the one accepted the liberal principles of the French Revolution, the other admired the enlightened authoritarianism of Napoleon. The chief exponent of revolutionary liberalism was Dirk van Hogendorp, a servant of the Company who had studied British rule in India and looked on England as a model of colonial policy. In a series of forceful pamphlets he placed the colonial problem in a new light; hitherto, it had been regarded as one of commerce, how trade should be conducted, but Van Hogendorp made it a question of government, how the country should be ruled. All parties were agreed that the aim of colonial rule should be to obtain the greatest profit for the homeland; Van Hogendorp differed from his seniors in urging that this would accrue from governing the country in accordance with the principles of the French Revolution. These principles implied the substitution of direct rule, such as had recently been introduced into British India, for indirect rule, which had always been the practice of the Dutch. In 1802 the Dutch government appointed a committee to examine the question and named Van Hogendorp as one of the members. The president of the committee, Nederburgh, and most of the members, however, held conservative views and Van Hogendorp failed to convince them of the benefits to be derived from direct rule. In its report, submitted in 1803, the committee laid down the principles of indirect rule through a native aristocracy under European supervision, and of control over the executive by an independent judiciary. This report formed the basis of a series of 'charters' promulgated by successive governments under the numerous ephemeral constitutions of the short-lived Batavian Republic; but no government lived long enough to give effect to its reforms. Meanwhile conditions in Asia were changing for the worse. The interruption of normal relations with Europe precluded supervision by the home government, and the local officials became still more arbitrary and corrupt than under the Company.

The report submitted in 1803 dealt primarily with problems relating to Java, for by this time nearly all other Dutch territories in the East Indies had been lost to the British. When William V, the last Stadtholder, took refuge in England in 1795, he ordered his colonial governors to welcome English troops and merchant ships. The governor of Malacca admitted the English, and Padang, which the French had sacked and left almost derelict in 1793, surrendered in 1795. In the following year the English occupied Amboina and Banda without opposition, and Ternate surrendered in 1799.

Although by the treaty of Amiens in 1802 all these posts were to be restored, the renewal of the war again placed the Dutch possessions at the disposal of the English. Java remained in a state of semi-independence for, though to a large extent cut off from contact with the home country, it was not occupied by the English, since the local Dutch government wisely refrained from any active support of the French cause. The trade of the island prospered in this period for, freed from strict supervision of the home government, the Dutch in Java were able to enter into commercial relations with neutral countries, particularly Denmark and the United States. This period of semi-independence ended with the appointment of Herman Willem Daendels as Governor-General in 1806.

ADMINISTRATION OF THE EAST INDIES UNDER DAENDELS, 1806-10

When Louis Bonaparte became king of Holland in 1806, he drew up a project of reforms for the execution of which he picked on Daendels, formerly a leader of the Dutch Jacobins and now a fervent admirer of the authoritarian methods of Bonaparte. Efficiency was the object of his policy and indirect rule was repugnant to him as inefficient. He therefore divided up the whole area under Dutch rule into ten prefectures, to be administered by official civil servants, except one that was placed under the Forest Department. The European officials were no longer graded as merchants, and native officials ceased to be territorial dignitaries, though they drew no official pay and still drew their emoluments from the land and the people. In each prefecture there was a European officer as prefect, with the regents as his subordinates. Daendels introduced for the first time a regular judiciary, constituting in each prefecture a native court with the prefect as chairman of a bench of regents. He also sought to reduce the influence of the Chinese by the resumption of lands mortgaged to them.

All these reforms were jeopardised by the necessity of putting Java in a state of defence against the British. Daendels was obliged to undertake extensive public works on harbours, forts and roads, and one of his greatest achievements was the construction of a grand trunk road along the whole northern coast. He also moved the residential quarters of Batavia to the suburb of Weltevreden and constructed a fortified camp at Meester Cornelis. As the Dutch were cut off by the British fleet from markets where they could sell

their produce, there was no money to pay for the construction of these works. Despite his distrust of Chinese influence, Daendels was obliged, therefore, to sell land to the Chinese on an unprecedented scale. Although he disliked compulsory cultivation, the need for produce which he hoped to sell made him enforce the cultivation of cotton in the plains and of coffee in the hills.

The extensive use of labour on public works occasioned serious difficulties. In Bantam Daendels required the sultan to provide labour for improving the defences, but the work was so laborious and unhealthy that many died and the sultan urged a relaxation of the demands for workmen. When this was not granted the Dutch Resident in Bantam was assassinated and armed force had to be used to quell the revolt.

The arbitrary methods of Daendels in dealing with both Dutch and Javanese caused widespread resentment. In Bantam and Cheribon, as in the native states of Soerakarta and Jogjakarta, he rigorously insisted on the absolute subservience of the native princes to his authority, whereas under the Company these dignitaries had been accorded a fair degree of local power. In respect of his own officials he was no less high-handed, deporting a former Resident and arresting several high officials without reporting his action to the home government. Quite apart from his dictatorial methods, the reforms introduced by Daendels were unpalatable to many influential men in Holland, and shortly after Napoleon Bonaparte annexed the Netherlands to the French empire in 1810 he was replaced by Jan Willem Janssens, a man of more moderate character. The new Governor-General had a short tenure of office, for in the following year Java and other Dutch possessions in the Indies came under British occupation.

BRITISH RULE UNDER RAFFLES, 1811-16

For some time past, Lord Minto, the Governor-General of India, had been considering the occupation of Java, which action was also being urged upon him by Thomas Stamford Raffles, Agent to the Bengal government at Malacca. In 1811, the Board of Directors of the English East India Company and the British government, with some reluctance, sanctioned a joint expedition. When Janssens relieved Daendels, the expedition was on the point of sailing and in August 1811, Raffles landed near Batavia, with some 9,000 men. The total Dutch forces in Java were certainly more numerous, but

they lacked equipment and arms. No serious resistance was offered to the occupation of Batavia. Janssens, with a bare remnant of his army, effected a withdrawal to the centre of the island, where he was joined by the rulers of Soerakarta and Jogjakarta, still disaffected and resentful of Dutch policy under Daendels. On 11 September, Janssens was forced to surrender and the campaign ended.

With the capitulation of the Dutch in 1811, Java and its dependencies of Palembang, Makassar and Timor became British territory. As Malacca and the west coast of Sumatra had remained under British control since the first conquest in 1796 and as the Moluccas had been reoccupied by them in 1810, the British held control of the whole archipelago. The English East India Company divided their new possessions into four administrative units, the Governments of Java, Malacca, Benkoelen (West Sumatra) and the Moluccas. Lord Minto entrusted the management of affairs in the East Indies to Raffles, who received the rank of Lieutenant-Governor. Although Raffles carried out important work in the Outer Provinces, particularly in reducing the slave trade and in countering the activities of the Boeginese pirates, his main achievement was the reorganization of the administration in Java.

In Java, Raffles, as Lieutenant-Governor, was assisted by a council of three officers, consisting of an English soldier, Colonel Gillespie, and two prominent Dutchmen, Muntinghe and Cransen. Although most of the Dutch inclined to France, there was a strong party favouring the British and at the head of these was Muntinghe, the ablest Dutch official of his time. Raffles had much in common with both Van Hogendorp and Daendels. Superficially his policy resembled that of Van Hogendorp; but whereas Van Hogendorp looked primarily to the interests of the Dutch, Raffles claimed to give first place to the interests of the natives. This difference of policy reflected a difference in the economic relations of Dutch and British in the East. The Dutch had no manufactures, and their sole interest lay in obtaining tropical produce as cheaply as possible. But the British since the Industrial Revolution could sell their cotton goods in Asia at a lower rate than those of local manufacture; their interest lay therefore in promoting native welfare so as to be able to sell as much as possible. Raffles was too shrewd to overlook this, but he had a genuine affection for the Malays, whom he thought 'fresher from the hand of Nature' than the peoples of British India, and he demonstrated this kindly sentiment by a keen interest in their history and language at a time when these were wholly neglected by the Dutch.

On the other hand Raffles shared the passion for efficiency which had inspired Daendels, to whom he gave credit for introducing 'a much more regular, active, pure and efficient administration than ever existed before'; but he rose far above Daendels in his intimate knowledge of the East and, with a much wider range of vision, enjoyed in a supreme degree the gifts of charm and sympathy which Daendels lacked.

The Dutch system of indirect rule rested on the principle of authority, as was necessary if they were to obtain produce cheaply by requiring the native to grow export crops under compulsion. Raffles, as a disciple of Adam Smith, believed in equality before the law and in freedom from government control over person, property and trade; this plan accorded best with the prosperity of British commerce. His policy was to substitute paid for compulsory services, and to leave the cultivator free to grow whatever crops might be most profitable. On this plan the regents were no longer needed as agents of compulsion, and the exercise of their authority on Eastern lines prejudiced the introduction of a new system based on Western principles. Raffles believed therefore in direct rule, and was fortunate in finding that Daendels had already moved in this direction. Again, his system of direct rule implied immediate relations between the government and the cultivator, and, therefore, the introduction of a land tax such as had been advocated by Van Hogendorp. On both these cardinal features of his reforms he could appeal to Dutch precedent.

In territorial administration Raffles elaborated the machinery which Daendels had invented. He took over the prefectures, but substituted the term 'residency', and raised the number to sixteen, partly by a readjustment of the former divisions, and partly by resuming tracts that Daendels had alienated to the Chinese. Daendels, while converting the regents into government officials, had retained the regencies; but Raffles termed these 'districts', and the regents became merely district officers. Further, in order to bring the government into still closer contact with the people, he partitioned the districts into police tracts or divisions under a divisional officer, with a headman in each village. In his relations with the native states Raffles continued the policy of Daendels in restricting their powers to a minimum. He annexed the sultanates of Bantam and Cheribon and limited the power of Jogjakarta by establishing a second principality within its borders, in the same way as since 1757 a small territory had been held as a fief by the Mangkoe Negoro in the state of

Soerakarta. In all administrative affairs both states had to comply with the wishes of the British government.

In his judicial reforms Raffles followed the liberal principle of uniformity of law for all classes. By reducing and redistributing the judges, he was able to provide a more efficient judicial organization in the towns at little or no extra cost; in the interior, he invested the Resident, sitting alone or with assessors, with the judicial powers formerly exercised by the prefect and a judicial bench; petty matters, which had formerly been left to the discretion of the regent applying native customary law, were systematically distributed between the district officer, divisional officer and village headman, with graduated powers.

Alongside this completion of the reforms of Daendels, Raffles applied the principles of Van Hogendorp, by conferring on the cultivators private property in land and by substituting paid for compulsory labour. One of his earliest measures was to institute an enquiry into land tenures. From this enquiry he drew the conclusion that all land was the property of the State and liable, therefore, to pay rent to the government. He gave directions accordingly that the land should be graded with reference to its productivity, and assessed proportionally, either by villages or by individual holdings. For the assessment of the land he employed the Resident or, so far as possible, a special Collector. The land-rent was collected by the village headman under the supervision of the divisional officer and the Resident.

The enquiry into land tenures also led Raffles to the conclusion that the head inhabitant of a Javanese village had 'from time immemorial been considered to have vested in him the general supervision of the affairs relating to the village, whether in attending to the police, settling the minor disputes that occur within its limits, or of collecting its revenues or more often its services'. Another discovery was that the office of headman 'had been elective, and the powers entrusted to him by his fellow-villagers'. This was his great permanent contribution to the administrative system of Java. The discovery of the elective headman, at once agent of the government and representative of the people, was extraordinarily happy, for it supplied Raffles with an instrument for building up a strong administrative system without depending on the regents, whom he distrusted as not only rapacious and oppressive, but also pro-Dutch. This idea of using the village as a unit of administration must have been familiar to Raffles from the practice of British India, and the

device, although novel to the Dutch, impressed them so favourably that it has ever since remained an essential feature of Dutch rule.

The all-embracing activities of Raffles extended to every branch of the administration, and everywhere he introduced new and more business-like methods. He laid the foundations of modern arrangements for exploiting the tin mines; he substituted direct management for the farming out of customs revenue and salt revenue to the Chinese and, on the other hand, farmed out to the Chinese the pawnshops which had previously been managed by the government; he endeavoured likewise to abolish the onerous restrictions which tolls and transport duties laid on trade in the interior, and placed relations with the surviving natives states on a new footing which left them merely the shadow of autonomy. In these, as in all other matters, the Dutch system has never been quite the same since it was cross-fertilised with the ideas of Raffles.

The services of Raffles to colonial administration were not adequately appreciated in England, either by the Directors of the East India Company or by the British government. The Directors noted that his policy in Java had not been financially successful; the British government had little sympathy with his vehement and repeated protests against the restoration of the islands to the Dutch, which was part of their general policy of building up the Netherlands as a strong barrier to French ambition. He was, therefore, recalled, and in March 1816 was relieved by John Fendall.

RESTORATION OF DUTCH RULE IN JAVA, 1816-24

Two years before Raffles was relieved of his post as Lieutenant-Governor, the Convention of London, between Great Britain and the Netherlands, had stipulated that the Dutch should recover all the colonial possessions in the Far East which they had held in 1803. Owing to the return of Napoleon from Elba, the commissioners sent out to assume charge on behalf of the Netherlands did not arrive until August 1816. Meanwhile Raffles had already been relieved in March of this year, but his successor, John Fendall, showed no disposition to make things easy for the Dutch. The Convention clearly left the English in Penang, and in Benkoelen, with its dependencies, Tapanoeli, Natal and Nias, but with respect to Dutch claims it allowed of contrary interpretations. One view, taken by the British, was that in 1803 the Dutch outside Java had held no more than their settlements along the coast and that the

interior was therefore open to the British. On the other hand, the Dutch claimed possession of the interior by virtue of their contracts with the local chieftains. Friction was especially acute over Borneo and Billiton, and in Palembang and Padang. The return of Raffles as Lieutenant-Governor of Benkoelen in the beginning of 1818 added to the troubles of the Dutch. Finally, however, the Dutch claims were allowed, although it was not until May 1819 that they regained possession of Padang. By that time Raffles was already in Singapore, where, braving Dutch opposition, he had hoisted the British flag in February. This created a new situation in the archipelago, leading to a comprehensive settlement of British and Dutch claims in a treaty concluded in 1824 (see pp. 82-3).

The controversy regarding the best system of administration had not yet been settled when Java was restored to the Dutch in 1816. The King of the Netherlands, William I, decided that a liberal policy should be applied under his direct control, and sent out three commissioners-general to introduce it. One of these was Baron van der Capellen, who later became Governor-General. On their arrival they found that Raffles had introduced a system even more liberal than that contemplated in their instructions. The main question was whether they should maintain the system of taxation introduced by Raffles or revert to the traditional Dutch system of tribute. There were general complaints about the inequitable incidence of land-rent, but it had the powerful support of Muntinghe, their chief adviser, and, after long and careful enquiries, the commissioners accepted his advice. The retention of land-rent involved the adoption of the administrative machinery invented by Raffles, with its territorial organization of residencies subdivided into regencies and villages. On the other hand, while retaining the machinery of Raffles, the commissioners aimed at working it on traditional Dutch lines through local native chieftains, and tried to enhance the dignity of the regent in Java by directing the resident to treat him as a 'younger brother', the term ordinarily used to express the relation of a vassal to his overlord. In judicial affairs also they reverted to the Dutch tradition of 'like over like', with separate courts and different law for each main division of the people, Europeans, Natives, and Foreign Orientals. These, and other minor reforms, were embodied in the Constitutional Regulation (*Regeringsreglement*) of 1818, and in January 1819 the commissioners made over their charge to Baron van der Capellen as Governor-General.

The system of leaving trade free and depending on taxation for

revenue placed the trade in the hands of the British and left the Dutch with insufficient revenues to pay their way. Muntinghe had foreseen this, and had always urged that the break with the old system of state trading should be gradual. Raffles had not been able to make Java pay its way. The Dutch set up a more costly establishment, and at the same time had to suppress unrest all over the archipelago. Muntinghe, who was on leave in Europe in 1824, explained the situation to the king, and obtained his approval for the foundation of a large trading company which should consolidate Dutch interests and thus be able to compete with the British merchants. This was the origin of the *Nederlandsche Handels Maatschappij* (N.H.M.), the Netherlands Trading Company, constituted in 1825.

The remedy, however, came too late. Van der Capellen, in his urgent need of funds, had been compelled to mortgage all the Dutch possessions in the East to a firm of British merchants in Calcutta. The king refused to sanction this, and sent out a special Commissioner-General, Count du Bus de Gisignies, to replace Van der Capellen and take any measures that he thought necessary to place the colony on a profitable basis. Muntinghe had looked to develop Java through native cultivators; du Bus preferred to trust to foreign capital. He drew up a scheme for colonising Java 'not with men but with capital', and in 1828 succeeded in founding the Java Bank, which together with the N.H.M. has ever since remained the basis of Dutch economic power in the Netherlands Indies. At the time, however, it failed to attract outside capital and practically the whole was subscribed by the government and the N.H.M., itself largely a government institution. Meanwhile the political and financial situation had been aggravated by a serious rebellion which broke out in Java in 1825.

DUTCH RULE IN THE OUTER PROVINCES, 1816-24

Outside Java, the Dutch paid little attention to any of their possessions in the archipelago, except Sumatra, and even here they were chiefly concerned to counter the activities of Raffles. The alternation of Dutch and British power in the archipelago engendered unrest among the native chieftains, which was aggravated by the discord between Dutch and British regarding their respective rights. After the return of Raffles to Sumatra in 1818, the friction there became so acute as to lead to military operations.

Sumatra

In western Sumatra the restoration of Padang was delayed by the trouble between the Padri, a group of Muslim reformers, and the conservative party, which included the members of the former royal house. Some of these took refuge in Padang, which under British rule was subordinate to Benkoelen. Although it was more than a century since the Menangkabau princes had exercised any real authority, Raffles, on taking over charge at Benkoelen, thought to use them as an instrument for extending British rule. He therefore espoused the cause of the refugees and stationed an armed post of a hundred men at Semawang, to protect the loyal population against the Padri. His action was disavowed by the Government of India and he had to withdraw the post. In May 1819 Padang was restored to the Dutch.

As the Padri were continually gaining ground the Dutch were apprehensive lest they should find support from the British in Natal. Accordingly in 1820, when the princes offered to surrender all their territories in return for protection against the Padri, their offer was accepted and the former post at Semawang reoccupied. This was the first incident in the long-drawn Padri War. For some years the Dutch maintained their hold on the interior, although they made no headway, but in 1825 with the outbreak of the Java War the Padri regained the ascendancy.

In Palembang the Dutch on their return found power divided between the nominal sultan and his predecessor, whom Raffles had deposed in 1812. They tried to settle the dispute by allotting to each rival a patch of territory for his court, and annexing the remainder of the kingdom. Not unnaturally, both rivals disapproved of this settlement. The younger brother turned for help to Raffles who despatched a column from Benkoelen. After defeating this column the Dutch banished the younger brother to Java and his territory was transferred to his rival, who, however, turned against the Dutch in the middle of 1819 and forced them to abandon their post in Palembang. In 1821 they defeated the sultan and two years later he surrendered to the Dutch all his sovereign rights in return for a monetary compensation.

The man whom Raffles recognized as sultan of Palembang in 1811 ceded Bangka and Billiton to the British. The Convention of London, 1814, provided for the exchange of Bangka for Cochin, but made no reference to Billiton, which remained, therefore, a subject of dispute between the Dutch and the British. In Bangka, the sultan of Palembang had a strong following and, when he turned the Dutch out of

Palembang in 1819, there was an insurrection which took over two years to quell. In Billiton there was less trouble from the people, but the dispute as to its ownership lasted until 1821, when the Dutch claims were provisionally allowed pending a final settlement.

Along the east coast of Sumatra the chief source of friction was Riouw, where the sultan was still overlord of Riouw and Johore, with a Boeginese pirate chieftain as his viceroy. In 1818, Raffles concluded a treaty of friendship with the sultan; in the following year he acquired Singapore island from the sultan and founded a British settlement there.

At the end of 1818 Raffles on his way to Singapore had contemplated the establishment of a post at Atjeh, but in deference to objections raised by the governor of Penang he passed on southwards without calling at Atjeh. After the acquisition of Singapore, however, the British made a treaty with Atjeh, giving them preferential rights in trade.

Borneo

The Dutch claims to Borneo were not finally admitted until after 1816, for, since Daendels in 1809 had sold all the Dutch rights, Fendall was reluctant to recognize their title to the island until expressly ordered to do so by the British government in India. When the Dutch finally took over, the rulers of the native states of Pontianak, Sambas and Bandjermasin sought their protection against the Boeginese pirates who were harrying the coast and against the groups of Chinese mining colonies which were a disturbing element in the interior. In 1818, the Dutch sent a few hundred soldiers to garrison certain outposts, but their strength was insufficient and the Dutch representatives were incompetent. The position grew worse, and the Chinese more unmanageable. Then in 1825 the Dutch had to leave the Chinese in possession as all their troops were needed for the Java War. The Boeginese pirates were similarly left a free hand in the coastal waters.

Celebes

In south Celebes, the ruler of Boni, who had stood out against the British, was no better inclined to welcome back the Dutch. By 1824 Dutch rule was merely nominal, and there remained a choice either to abandon this part of the island or to restore the authority of the Dutch by force of arms. By an expedition in 1825, they managed to recover the same position which they had held in 1669 (see p. 64). Boni was defeated but not subjugated. Further operations were

prevented by the outbreak in that year of the Java War and Boni remained practically independent. In Manado, however, the Dutch were welcomed as old friends.

Moluccas

When the Moluccas were restored to the Dutch in 1817 the people were indisposed, after two hundred years of oppression, to submit quietly to the transfer. The immediate consequence was a serious insurrection in Saparoea, one of the Oeliassers, which soon spread to Amboina, and some months elapsed before order was restored.

Lesser Soenda islands

Although Raffles had reduced the princes of Bali to submission, both Bali and Lombok regained their independence on the restoration of Dutch rule. In Timor the Dutch ejected the Portuguese from the district in the western part of the island upon which they had encroached during the time of the British occupation. Apart from this incident all the islands in this group, though nominally Dutch possessions, were neglected.

THE ANGLO-DUTCH TREATY OF 1824

Although the Dutch showed little interest in the Outer Provinces, they wanted to make good their claims and especially to prevent any further incidents such as the occupation of Singapore. The British on their side wanted to develop their trade and found that, even in Java under Dutch rule, they were able to cut out the Dutch merchants. With stations at Penang and Singapore they held a strong position along the main route to the East and it would be even stronger if they could obtain Malacca; Benkoelen and their posts on the south coast of Sumatra, however, were of little value if they did not want to use the Soenda strait. These were the essential factors in the prolonged negotiations which arose out of the occupation of Singapore and ended in 1824 with a new treaty.

The treaty concluded in London in 1824 between the Netherlands and Great Britain settled the political and commercial relations of the two powers in the East Indies. On the commercial side it provided that the ships and subjects of either nation calling at ports belonging to the other should not pay more than double the duty charged to nationals, or more than six per cent where the nationals paid no duty; that there should be mutual communication of treaties made with native governments; and that no such treaty should aim at excluding

the trade of the other contracting power. In respect of political relations, the treaty provided for the surrender by the Dutch of their ports in India, of Malacca, and of all settlements in the Malay Peninsula; the British in return surrendered all their settlements in Sumatra, and undertook to make no further settlements south of Singapore; the British were confirmed in their possession of Singapore and the Dutch in their possession of Billiton; further, by an additional note appended to the treaty, the Dutch undertook to respect the independence of Atjeh. The treaty also provided that, if either party should relinquish settlements in Sumatra or in the Malay Peninsula, its rights should devolve on the other party. Although the exact terms of this agreement were often called in question, it formed the basis of the relations between the two powers for close on fifty years.

THE JAVA WAR, 1825-30

Almost immediately after the adjustment of their relations with the British in the Outer Provinces, the Dutch were called upon to face a serious situation in Java. For some time trouble had been brewing in the native states. In 1822 the accession as sultan of Jogjakarta of the great-grandson of the man banished by Raffles in 1812 was a grievous disappointment to his uncle Dipo Negoro, who had hoped for the recognition of his own not very substantial claims. From that time onwards he was a centre of disaffection both at court and in the country. The general disaffection had a substantial basis in the heavy demands, legitimate and illegitimate, made by the native and European governments and by native and European officials for their private interest. One notorious abuse was the farming out of tolls to the Chinese. In 1824 the government arranged to forego these in return for the cession of certain districts belonging to the native states, and thereby united against them all who drew their incomes from these districts. The most serious trouble arose out of the cancellation of leases granted to private adventurers. The rulers of the native states had always rewarded their followers by granting them estates. It had long been the practice for those who held these 'appanages' to raise money by mortgaging them, and, since the restoration of Dutch rule, many Europeans had obtained leases of such lands. For many reasons this practice was objectionable: the produce of these estates spoiled the market for produce belonging to the government; European officials had a long-standing prejudice against private European enterprise in the interior; the

lessees oppressed their tenantry; and it was impossible to prevent European officials obtaining leases for themselves. Van der Capellen decided to put an end to all this. He directed that all leases should be resumed, and the money paid for such concessions refunded. This of course had long been spent, and the result of his orders was that the planters lost their money, the local grandees lost their source of income, and the native rulers lost prestige. In order to provide the necessary funds for compensating the planters, the government proposed to advance them on the mortgage of territories belonging to the native states. The proposal was regarded as a provisional annexation, and this suspicion deepened when in 1825 the government had insufficient means to redeem its undertaking.

Dipo Negoro seized the opportunity to rebel, and was encouraged by the Soesoehoenan of Soerakarta. The latter drew back on the arrival of the Dutch forces, and the two lesser princes, Mangkoe Negoro and Pakoe Alam, held firmly to the Dutch. Dipo Negoro proclaimed himself sultan, and the rebellion spread from Jogjakarta over the greater part of central Java. Until 1827 the Dutch position was critical, but after that it gradually improved and by 1830 Dipo Negoro was compelled to surrender and was banished to Manado. At the ensuing settlement both Soerakarta and Jogjakarta were reduced to their present territories.

JAVA IN THE PERIOD 1830-70

The Culture System, 1830-50

When the State took over the affairs of the Dutch East India Company the debts of the Company amounted to f 134.7 million. Neither the plan of encouraging native cultivation advocated by Muntinghe, nor the encouragement by du Bus of capitalist enterprise brought relief from the burden of debt and the Java War added greatly to the cost of government. At the same time the home government was getting more deeply into debt and by 1830 the financial situation was critical both at home and in the East. At this juncture Johannes van den Bosch put forward a new plan based on the former system of the Company. He proposed that the cultivators, instead of paying taxes in money, should be required to devote part of their land to the cultivation of export crops for the government. The king approved this project and sent Van den Bosch as Governor-General to introduce it.

The Culture System, as it was called, was part of a comprehensive

plan to develop commerce, shipping and industry in the Netherlands. Coffee, sugar and indigo were the main products developed under the System. The produce collected from the cultivators was consigned to Europe by the N.H.M. (see p. 79) and sold, on behalf of the government, in Amsterdam; the proceeds of the auctions were invested in Dutch manufactures which were exported for sale to the natives. There was a rapid development of the Dutch mercantile marine; Amsterdam became the chief market in Europe for coffee and sugar; and a new and important industry sprang up in the manufacture of cotton goods. The fiscal results were so satisfactory that the outstanding debts were wiped off and Java was able to contribute to the Dutch treasury.

The administrative results of the Culture System were less satisfactory. It converted the civil administration into a machinery for making commercial profits, and was not only liable to serious abuse, but was in some ways inefficient. In form the administrative framework devised by Daendels and Raffles was retained. The resident and one or more assistant-residents were linked up with the native staff by an inspector, representing the *opziener* or 'coffee-sergeant' of earlier days and charged with the supervision or inspection of the native officers. These comprised the regent with his assistants, working through the village headman. All the officials, European and native, drew a commission on the produce of their charges; the European officers tended to become commercial agents and the regents regained their former position as hereditary chieftains, exercising their authority without question so long as they furnished the stipulated produce. The demands for compulsory labour disorganized village life and the possession of land was so burdensome that much of it became village land because no one wished to hold it.

The Transition to Liberalism, 1850-70

While the Culture System was annually paying vast sums to the Dutch treasury out of its commercial profits, it was also enriching a growing class of merchants and manufacturers in the Netherlands who gradually came to demand a larger say in political and financial matters in the Netherlands, and, subsequently, in the East. At the same time a number of influential Dutchmen were advocating that the government in the East Indies should pay more attention to the welfare of the native peoples. W. R. van Hoevell and Eduard Douwes Dekker were the most prominent of these reformers; both en-

countered opposition from the government of the Indies and both published numerous books and articles on their return to the Netherlands. The most widely circulated of the books by Dekker was his *Max Havelaar*, written under the pseudonym of 'Multatuli'.

As one outcome of the revolutionary wave that spread over Europe in 1848, the Liberals came into power; this was the prelude to a new constitution for the Netherlands Indies, the first to be enacted by the States-General. This new constitution, the *Regerings-reglement* of 1854, took over the existing administrative machinery with little change of form. The government of the Indies was entrusted to a Governor-General with a council, the *Raad van Indië*, in some matters sharing his responsibility and in others merely advisory. Provision was made for the constitution of departments to manage various branches of the administration. The judiciary was to be independent of the executive. In the territorial administration the dual system was retained. There was to be a European civil service, comprising the residents and their subordinates; but the natives as before were to be left under their 'appointed or recognized heads', and the right of managing their own affairs and electing their own headmen was guaranteed to the village communities. Since 1815 the Crown had always stood above the law, but this would no longer be permissible. Thus, in principle, the Constitution of 1854 made a final break with the older system resting on authority.

On many points, however, the break with the past was by no means definite. Some of these were left to be settled by 'general regulations' (*algemeene verordeningen*), which comprised not only laws (enactments of the legislature), but also royal decrees (acts of the Crown) and ordinances (acts of the Governor-General, with or without his council). The matters chiefly in issue were parliamentary control over colonial finances, and the substitution of private enterprise for State cultivation. The first was settled in 1864 when the Accounts Law (*Comptabiliteitswet*) provided that the budget should be passed annually by the States-General.

From 1862 onwards the State gradually withdrew from cultivation of the less important crops, and the Sugar Law of 1870 provided for the relinquishment of the cultivation of sugar in twelve annual instalments beginning from 1878; coffee was still grown for the government, but merely for revenue, until a further enactment of 1915 put an end to this arrangement in 1919. In 1870 also the Agrarian Law placed private enterprise on a secure basis by enabling capitalists to obtain land from the government or from the natives.

THE OUTER PROVINCES IN THE PERIOD 1830-70

In this period, as for over a century previously, the Outer Provinces were largely neglected by the Dutch and the government interfered in native affairs only when their sovereignty was seriously in jeopardy. The great contrast in economic development and in population density as between Java and the other islands is in some measure a reflection of this policy. In the middle of the nineteenth century Dutch activity in the territories outside Java was largely confined to punitive expeditions. Not until after 1870 was there any large-scale economic development in these regions.

The interference of the Dutch government in the internal affairs of the Outer Provinces during this period was occasioned in large part by fear of British competition. By the treaty of 1824 the British had undertaken to make no further settlements in any island south of Singapore. Whether this applied to islands which lay mainly south of Singapore, although extending northwards of a line drawn east from Singapore, was a question which arose when James Brooke assumed rule over Sarawak in 1839 and again when the sultan of Brunei ceded Labuan to the British government in 1846. In both cases the Dutch government was forced to accept, under protest, the British interpretation. The British occupation of the northern coast of Borneo caused the authorities in Batavia to pursue a more energetic policy, particularly as British territorial expansion threatened to undermine Dutch influence in Sumatra. In 1857, an English adventurer, Wilson, attempted to set up a British vassal state in Siak, a district on the north-east coast of Sumatra, but as this contravened the clause in the treaty of 1824 by which the British agreed to abandon Sumatra, he failed to get support from Singapore and in the following year Dutch troops occupied the territory, with its dependencies of Deli, Serdang, Langkat and Asahan. Although in this case the British kept to the treaty regulation made in 1824, they took advantage of the ambiguity of the clause by which they undertook to forego all claims to territory in Sumatra. In agreeing to this, the British had not intended thereby to abandon commercial privileges with the native states, which they regarded as independent. Since the treaty of 1824, moreover, provided that no new arrangement by either power should be made to the prejudice of the other's trade, the British protested that when the Dutch took over Siak their action was an infringement of the treaty as being prejudicial to British interests.

About the same time as the Dutch were extending their political

influence over Siak and the north-east coastlands of Sumatra they successfully subdued Palembang, the Lampoeng districts in the south of the island and established friendly relations with Atjeh. In this period also, the island of Billiton was brought under direct rule and tin-mining began with the founding of the Billiton Tin Company in 1852.

The Dutch proceeded to deal with Atjeh shortly after 1837, when the Padri War was brought to a successful conclusion, for the Atjehers were a danger to the Dutch settlements in Natal and Tapanoeli on the west coast.* In their dealings with Atjeh the Dutch were hampered by the treaty between Atjeh and the British in 1819, and by the undertaking given in the settlement of 1824 that the independence of Atjeh would be respected. The Dutch feared complications if another foreign Power should gain a foothold in Sumatra, and tried to establish friendly relations with Atjeh by a treaty of 'peace, friendship and trade' in 1857. These friendly relations were immediately disturbed by the arrangement in the following year, which made the Dutch nominally the overlords of the petty states north of Siak that in fact were clients of Atjeh. The position became more serious with the opening of the Suez Canal in 1869, for the Dutch had accepted the responsibility for policing these waters, but were unable to fulfil their obligations without subjugating Atjeh. Finally in 1871 the British government recognized the difficulties of the Dutch and, by the Sumatran treaty of that year, gave them a free hand against Atjeh. This opened a new chapter in Dutch relations with the archipelago.

In the other islands of the Outer Provinces few important political changes took place in the middle years of the nineteenth century. In the period 1850-56 two Dutch expeditions restored order in west Borneo, where the Boeginese pirates along the coast and the Chinese mining colonies (*kongsi*†) in the interior had long remained powerful. In south Borneo a resident was appointed at Bandjermasin, but he was merely a political agent who had no concern with internal affairs until 1846, when Dutch interest was aroused by the discovery of coal in Martapoera. The working of the mines led to a conflict with the sultan. In 1860 the Dutch abolished the sultanate and annexed the territory. Eleven years before the settlement of

* Natal and Tapanoeli were made over by the British to the Dutch in the treaty of 1824.

† The word *kongsi* signifies 'the administration of common interests'. The *kongsi* in west Borneo were groups of Chinese who had banded together to work the gold mines of this region.

affairs in south Borneo, a punitive expedition occupied part of the island of Bali, for, despite the formal agreement by the rajahs in 1841 to respect Dutch suzerainty, there was constant and increasing friction. More significant events were taking place in the Moluccas at this period, for the middle years of the nineteenth century witnessed the first definite break in the rigid monopoly system as it applied to these islands. In 1854 several ports of the Moluccas were opened to ships of all nations; in 1863 the monopolies of cloves and nutmegs were abolished. The Dutch, however, were reluctant to allow foreign Powers any pretext for intervening in the east of the archipelago and, with a view to forestalling British or French designs on New Guinea, assumed possession of the western part of the island in 1828 and founded a settlement in Triton bay. This proved so unhealthy and so exposed to the attacks of pirates that it was abandoned in 1836; after that the Dutch were content to demonstrate their sovereignty by an occasional visit of a warship.

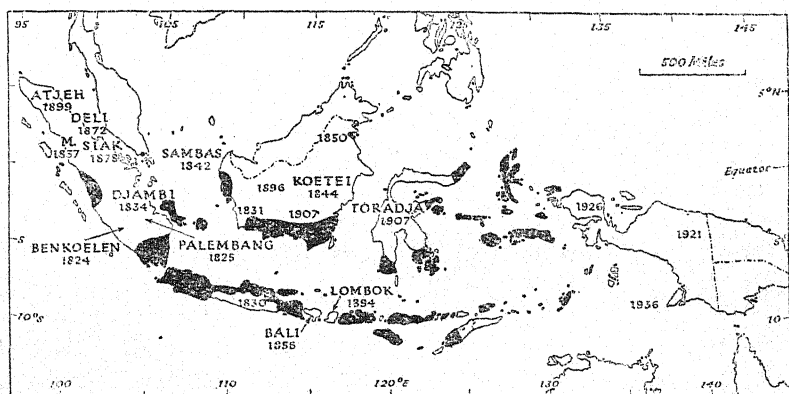


Fig. 8. Dutch acquisition of the Outer Provinces

The areas under Dutch rule in 1815 are shown in black. The dates indicate the year when each particular area came under Dutch control.

Source: (1) *Atlas van Tropisch Nederland*, plate 10 (Batavia, 1938); (2) Bernard M. Vlekke, *Nusantara, a History of the East Indian Archipelago* (Cambridge, Mass., 1943).

THE EAST INDIES UNDER THE LIBERAL SYSTEM, 1870-1900

Under the Liberal System, which formed the basis of Dutch colonial policy between 1870 and the close of the nineteenth century, government enterprises and compulsory labour were decried and free scope

was given to the growth of private economic interests. This period witnessed a remarkable development in agricultural production. The production of sugar rose from 152,595 tons in 1870 to 380,346 tons in 1885 and there was a growing export of tobacco, coffee and tea. It was in these years that the *cultuurgebied* of north-east Sumatra began to develop as an important agricultural region, though planters had been settling there since 1863. In Java, the cultivation of cinchona bark was first developed at this time and by 1900 the production of cinchona had reached 6,000 tons. The mineral resources of the East Indies were also being developed on an increasing scale. The output of tin from the mines on Bangka and Billiton expanded rapidly, while the oilfields in Java, Sumatra and Borneo began to be opened up. Much capital was expended on these agricultural and mining enterprises and between 1860 and 1880 a number of trading companies and banks were established to lend money to private promoters. Of these companies, the most important was the N.H.M., which had played the leading part in carrying and selling the government products during the period of the Culture System. Other companies, notably the Deli Tobacco Company, were promoted by the N.H.M. which also established branches in widely scattered parts of southern and eastern Asia.

The application of Liberal principles in the economy of the Netherlands Indies was not the only cause of this expansion of commerce and industry. The opening of the Suez Canal in 1869 was a significant factor, for it lowered the costs of transportation between the East and the West and, since the prices of commodities could thereby be reduced, this had the effect of expanding the market for tropical products. The rapid growth in importance of the steamship was also a contributing factor to the commercial boom.

The turn of the century saw a reaction against the Liberal regime for in many quarters it was felt that, though private enterprise should continue to be encouraged, the natives should be protected from economic exploitation. In 1901 the Netherlands government accepted the principle that it had a moral duty to fulfil towards the Indonesian peoples and henceforth determined to shape its policy in the interests of the natives and not of those in control. The measures taken by the government since then have been conceived and applied in accordance with this principle.*

* For an account of economic affairs in the Netherlands Indies in the period since 1900 see the chapters on agriculture, industry and commerce in this handbook.

THE SUBJUGATION OF ATJEH, 1873-1900

During the last quarter of the nineteenth century the relations with the state of Atjeh in northern Sumatra were a dominant issue in Dutch colonial policy; the great expenditure on the long-drawn war, with its many reverses and disappointments, was a main factor in transforming the economic relations between the Netherlands Indies and the mother country, and its triumphant conclusion was the signal for a rapid expansion over the rest of the archipelago. In 1868 Atjeh had voluntarily placed itself under the protection of Turkey, and Italy was discussing the suitability of Atjeh as a penal colony. As the prospect of war with the Dutch grew imminent its sultan sought for help from Turkey, Italy, France and the United States, and the consul of the United States in Singapore went so far as to draft a treaty promising American support. Hereupon the Dutch seized an occasion to declare war, and in 1873 an expedition landed near Koetaradja, the capital of Atjeh. This met with little success, but in the following year another expedition captured the stronghold of the sultan at Koetaradja, where the Dutch established a post. The sultan died, and the capture of Koetaradja was taken to imply the subjugation of the whole kingdom. But the people rose against the infidels, and even in Koetaradja the Dutch were insecure until they had set up a ring of outposts, within which they were besieged. In 1878 active operations were resumed and the whole Atjeh valley was conquered before the end of the following year. This again was taken to mean a final victory. But the coast dependencies now joined the Atjeher, and in 1884 the Dutch decided to concentrate in Koetaradja and abandon all attempts to rule the country, hoping gradually to extend their influence by the lapse of time and with the help of an Atjeh chieftain, who had joined their party. This man, Toekoe Oema, was supplied with ammunition and allowed to garrison the inland posts. In 1896 he deserted, with all his men, arms and ammunition, and placed himself at the head of the hostile forces. The Dutch position was now critical, and they were again obliged to concentrate in Koetaradja.

For some years past the Islamic scholar, Professor Snouck Hurgronje,* had been urging that the policy of conciliation was

* Snouck Hurgronje was Professor of Islamic Law and Religion at the Institute for Indonesian Studies at Leiden. In 1885 he lived for several months at Mecca and in 1890 went to the East Indies as an adviser on Muslim affairs. During his stay in the East he made a special study of Atjeh and in 1893 published his classic work *De Atjebers*.

destined to failure; success could be achieved only by crushing the enemy and introducing a strong but constructive administration. He was supported by Van Heutsz, the most outstanding figure in the Dutch army. By vigorous action Oema was driven back; new headquarters were established at Indrapoeri, with local bases at Lhas Nga and Djot Mandjang. These three posts were linked up by a light railway and served as centres for mobile columns, which could take action immediately wherever the enemy appeared. At the same time, the native population was disarmed, hill villages, where hostile bands could take refuge, were demolished, and roads and bridges were constructed to facilitate the movement of troops. By the beginning of 1898, Oema was driven out of Atjeh, and Van Heutsz, now appointed civil and military governor of Atjeh, took up the task of subjugating the dependent principalities. First he dealt methodically with the states along the east coast, where Oema had taken refuge. As each state surrendered he imposed a heavy fine, payable in pepper, which brought in a substantial contribution to the cost of the campaign. Within a year of his appointment he had driven Oema to the west coast, where in February 1899 he was ambushed and slain. Before the end of that year Van Heutsz had subdued all the states along the east coast, and during the following year he turned his attention to the west coast. By 1900 nearly all the district chiefs had surrendered and it could be claimed that the thirty years' war in Atjeh was ended, although the sultan himself held out until 1903, when he surrendered and acknowledged Dutch sovereignty.

The subjugation of Atjeh is memorable as marking a new policy towards the native states. Previously the Dutch had required dependent princes to sign long contracts setting forth in great detail the rights conceded to the Dutch. Snouck Hurgronje urged that this procedure was futile; all that the native princes wanted was a guarantee of their position so long as they were amenable to Dutch requirements. On his advice, therefore, the native rulers in Atjeh were required to sign a 'short declaration' (*korte verklaring*) containing only three articles: the ruler admitted that his territory was under Dutch rule; undertook not to enter into political relations with foreign powers; and thirdly, agreed to comply with all such rules and orders regarding his state as the government should prescribe. This 'short declaration' has since been adopted for most of the native states throughout the archipelago.

The surrender of the sultan in 1903 was in itself of no importance, for he had little influence. The strength of the resistance lay in its

religious, racial and national character, and sporadic outbreaks continued during the rest of 1903 and later. The Japanese victory over Russia gave fresh life to the native opposition, and the sultan and religious leaders entered into secret negotiations with Japan with the object of securing an alliance and munitions. The unrest was partly due to excessively harsh rule, and in 1907 Van Heutsz, now Governor-General, visited Atjeh to introduce a milder policy, which was adopted with some considerable success by a new governor. Even in 1912, however, it was still necessary to hunt out guerilla bands, and there were further raids in 1915. But in 1918 the country was deemed fit for the introduction of normal civil rule.

POLITICAL EVENTS IN THE OUTER PROVINCES, 1900-10

During the Atjeh War the Dutch were too fully occupied to attend to their possessions elsewhere and their agents were merely 'living signboards to keep off foreign trespassers'. But in the Convention of Berlin in 1884 the European Powers had accepted the principle that possession must depend on effective occupation. They were casting greedy eyes on the Far East and the Dutch were apprehensive of foreign intervention. Moreover, large combines were reaching out their tentacles over the tropics to safeguard their supplies of raw materials, and foreign capital was pouring into the Netherlands Indies to develop its resources in oil, rubber, tea and other products.

In the sultanate of Djambi on the east coast of Sumatra there was continual unrest until the subjugation of Atjeh encouraged the Dutch to take strong measures. Military operations from 1901-04 suppressed all opposition and in 1906 the sultanate was abolished and the country brought under direct rule. The entanglement in Atjeh also precluded forcible action in Riouw. In 1903 the Governor-General personally warned the sultan that he would be deposed if he remained contumacious, but the effect soon passed away and he resumed a hostile attitude. In 1911 therefore he was deposed, a pension was granted to him and to his heir, and his territory was annexed. Further north planters had been settling in Deli since 1863. Here, and in the adjacent states, the administration was in large measure in the hands of planters acting in the names of the local rulers. The situation was complicated because both Siak and Atjeh claimed rights over these states; but in 1884 the sultan of Siak sold his claims to the Dutch

government, and the subjugation of Atjeh left the native rulers wholly dependent on the Dutch government. In the western mountain region the whole Batak country had been brought under Dutch rule by 1906; on Nias, head-hunting was suppressed and the island gradually pacified.

Effective Dutch rule was also extended to the other islands of the archipelago in this period. An expedition in 1905 succeeded in establishing effective rule in Borneo. The boundaries between Dutch and British territories in this island were determined by the treaty of London of 20 June 1891; they were more closely defined in a protocol of 28 September 1915. In the same year as the Dutch expedition visited Borneo another was sent to southern and central Celebes and in 1906 the sultan of Ternate, in consideration of a pension, made over to the Dutch his rights in eastern Celebes. Further east, the danger of foreign intervention was especially acute, as in 1884 Britain had established a protectorate over south-east New Guinea and in 1885 Germany had annexed the north-east part of the island. The Dutch, therefore, bought off the claims of the sultan of Tidore over western New Guinea and introduced a regular administration there between 1898 and 1902. On 16 May 1905, a treaty fixed the boundaries between Dutch and British New Guinea. From 1905 onwards the Dutch took similar precautions in the Lesser Soenda islands, and in 1908 arrived at an agreement with Portugal by the demarcation of their common boundary in Timor. In Bali and Lombok matters ran less smoothly. Here the Dutch were so conciliatory that in 1884 they complied with an ultimatum requiring them to withdraw their ships within eight days, and not for ten years did they feel strong enough to assert their power. An expedition was then sent against Lombok, and its dependency, Karangasem, was taken over by the Dutch. Gianjar, another dependency, seeing that under Dutch protection Karangasem was secure against its neighbours, likewise accepted Dutch rule. This action caused resentment in the other parts of Bali and Lombok. Van Heutsz, therefore, took action to complete the subjugation of the islands. Although it was not until 1914 that the last soldier left Bali, Dutch rule had made such progress under Van Heutsz that, when he laid down his charge in 1909, 'it was as if one had come into a new world'. For the first time since the Dutch arrived in 1596 all the islands were brought effectively within a single realm, and foreign Powers could no longer intervene on the ground that the Dutch were neglecting their possessions.

GROWTH OF NATIONALISM, 1900-14

Chinese Nationalism

The nationalist movement in the Netherlands Indies began among the Chinese and may be dated from 1899, when the recognition by the Dutch government of the Japanese as legally in the same category as Europeans offended the Chinese, to whom this status was in general denied. Among the Dutch there was a strong feeling against the Chinese on the alleged ground that their influence was prejudicial to the natives. This sentiment found expression in measures adverse to the Chinese interests in money lending and trade in opium. Stimulated by these grievances, and urged on from China, the Chinese in 1901 began to establish schools for the advancement of Chinese education, and in 1907 trade committees to promote their trade. Then in 1911 the foundation of the Chinese Republic aroused keen enthusiasm, and orders restricting the display of the new republican flag led to boycotts and riots, which had to be suppressed by force.

But the general trend of policy was in the direction of conciliation. The Chinese, like the other Foreign Orientals, had always been left under their own headmen. Up to 1900 they were restricted to special quarters in certain towns, and required a pass to travel about the country. Between 1904 and 1910 the restrictions on movement were relaxed, and the opening of private Chinese schools was countered by the provision of Dutch-Chinese schools. From 1911 onwards there was further progress in removing the restrictions on travel, and in 1919 all restrictions as to residence in Java were abolished; in 1926 this measure was extended to the Outer Provinces. Thus, the whole policy of segregation was gradually abandoned. During the same period the legal position of the Chinese was improved. In the Constitution of 1854 they were placed on the same legal footing as the natives. Until 1899 they acquiesced in this position, but the new legal status accorded to the Japanese in that year encouraged the Chinese to agitate for a similar recognition. Although, together with the natives, they derived benefit from various concessions in respect of status and judicial procedure, it was not until 1925 that they obtained almost complete exemption from the civil jurisdiction of the court for natives, and the demand to be placed on the same legal footing as Europeans has not yet been granted, though in 1930 the government announced that this measure was under consideration.

This policy of conciliation has taken the edge off Chinese nationalism. For a short time about 1925, when Chinese communism

spread to Java, there was an uneasy alliance between Chinese and Javanese communists. In general, however, the rise of nationalism among the natives has brought Chinese and Europeans closer together, and the Chinese nationalist movement in the Netherlands Indies has been chiefly important in stimulating native nationalism.

Native Nationalism

The work of Raden Ajeng Kartini, the daughter of a regent, as a pioneer in the cause of education for native women, marks the dawn of modern nationalism among the native peoples. Although she died in 1904, at the age of twenty-five, her four years' work in devotion to this cause had a lasting influence. The Japanese victory over Russia in 1905 and the success of Chinese nationalists stimulated a retired Javanese physician, Dr. Oesada, to tour the country, preaching the advancement of Java by education. He began his campaign in 1906 and in 1908, with the help of Raden Soetomo, a medical student who was later to become one of the most prominent leaders of nationalism, was able to create the first nationalist society, *Boedi Oetomo*, the Glorious Endeavour. This organization has done and is doing useful work, but chiefly among the 'intelligentsia', and on the whole has exercised a moderating influence. The next step followed closely on the declaration of a republic in China in 1911, but it took shape as a protest against Chinese sharp practices in the batik trade. The Javanese traders formed a society with their religion as a symbol of social unity, under a title subsequently abbreviated to *Sarikat Islam*. This spread rapidly among all classes, forming local societies with a central association, which in 1915 obtained the privilege of legal incorporation. Within five years after its foundation *Sarikat Islam* counted 800,000 members. In 1912, the year after the founding of *Sarikat Islam*, a purely religious Muslim movement started, known as *Muhammedya*; it developed much more slowly than *Sarikat Islam*. Meanwhile the nationalist movement was obtaining recruits from the domiciled community of European descent, mixed ordinarily with local blood. Many of these Indos, as they are termed, made common cause with the natives and founded an Indian Party, comprising both Indos and natives and aiming avowedly at independence. In 1913, however, the leaders of the party were suppressed and the party broke up.

ADMINISTRATIVE CHANGES, 1900-39

From 1870 until the end of the nineteenth century, liberalism had

been the guiding principle of Dutch colonial rule, finding expression chiefly in the freedom of private enterprise. The administrative machinery was still centred round The Hague and in the East Indies all power was vested in the bureaucracy headed by the Governor-General. As private enterprise in the East Indies grew in wealth and influence, it became impatient of control from home and of bureaucratic rule, and there was a general demand for decentralization. Moreover, the spread of private enterprise from Java to the Outer Provinces was making it desirable to bring these under effective administration. In addition, the growing reaction against a *laissez-faire* policy was encouraging the view that the State ought to take active measures for the promotion of general welfare. Thus, from about 1900 onwards there was a general trend in the direction of a decentralized, efficient and sympathetic administration, which the Dutch distinguish as the Ethical System.

During the early period of the growth of a nationalist movement in the Netherlands Indies the government devoted much of its energy to the gradual development of local autonomy. The Decentralization Law of 1903 provided for the 'delegation of powers from the central authority to lower organs of government'. In the following decade residency and urban councils were formed in Java, a council was formed for the *cultuurgebied* of Sumatra, and councils were also established in many other rural areas of the Outer Provinces. A step towards self-government for the Javanese village (*desa*) was taken in the Village Ordinance of 1906 which attempted to turn each village into an image of the Dutch *gemeente*, with council meetings, popular votes, budgets and accounts. At the same time officers of the civil service, European and native, with the help of departmental experts, urged on the headman and his council numerous reforms in education, sanitation, agriculture, and veterinary matters. Of greater importance in the history of self-government in the Indies was the creation in 1916 of the Volksraad or People's Council. The establishment of some kind of representative assembly in Batavia had been debated for many years and the advantage of such an assembly became more evident with the rise of nationalism and with the outbreak of war in 1914. The Volksraad was constituted by an enactment made in 1916 and its inaugural session was opened by the Governor-General on 18 May 1918.

The powers of the Volksraad were limited at the time of its institution, for, under the constitution then in force, the Netherlands Indies government could not act independently of the government

in The Hague. Administrative reforms undertaken in 1922 culminated in the drafting of a new constitution (*Indische Staatsregeling*) for the Netherlands Indies in 1925. Supreme executive and legislative powers were given to the Governor-General who, except in a few cases, did not require the approval of the government of The Hague in his decisions. The authority of the Volksraad was greatly increased, for the constitution laid down that the Governor-General must seek its advice and in some of his decisions have its approval (see p. 112).

The administrative reforms of 1922 and 1925 helped also towards the development of a decentralized form of administration. The Netherlands Indies was to be distributed among large Governments, and then each Government, as circumstances might allow, was to be converted into a Province, by equipping it with a local council for dealing with special local interests. Under this scheme three Governments have been formed and converted into Provinces: West-Java, 1926; Oost-Java, 1929 and Midden-Java, 1930. The two Residents in the native states of Java were promoted to the rank of Governor, largely by way of compliment to the native rulers. In the Outer Provinces three Governments were constituted with effect from 1938; the Governors have been given the assistance of advisory bodies, but, as legislative councils have not been formed, the Governments have not as yet been converted into Provinces.*

GROWTH OF POLITICAL PARTIES AND OF NATIONALIST MOVEMENTS, 1914-39

The rise of nationalism among the native groups stimulated the growth of political parties among the Europeans in the Netherlands Indies. In 1914 the Social Democratic Union of the Indies (I.S.D.V.) was formed to represent the Social Democratic Party of the Netherlands. This was countered by the *Nederlandsch-Indië Vrijzinnige Bond* (N.I.V.B.), a Liberal organization which aimed at uniting moderate progressives of all races. In opposition to these secular parties there formed the Christian Ethical Party and the Roman Catholic Party of the Indies. About the same time the I.S.D.V. developed revolutionary tendencies, and the more moderate elements split off to form the Social Democratic Party of the Indies (I.S.D.P.) leaving the original I.S.D.V. an extremist party with communist views.

* For further details of the administrative system in the Netherlands Indies see Chapter IV, *passim*.

At the opening of the Volksraad in 1918 most Europeans looked to the development of Java as a province of Europe in the East. When the nationalists demanded separation many took alarm, and formed the Political Economy Bond (P.E.B.) advocating cautious progress under the Dutch flag. Others, more sympathetic with nationalist ideas, formed the *Stuw* group. Then, as the nationalist demands grew more extreme, there was a reaction among Europeans, which found expression in 1929 in the formation of the Vaterlandsche Club (V.C.). For some this club was too moderate, and they formed a Fascist organization, but this, despite a visit from the Dutch Nazi leader, Mussert, in 1935, expired in 1937. Thus, the political situation in the Netherlands Indies is complicated by party rivalry among Europeans.

Under European influence the programme of *Sarikat Islam*, which, as already mentioned, was the chief nationalist party in 1914, took on a colour of anti-capitalism, and at the end of 1918 the radical block in the Volksraad included the representatives of *Sarikat Islam*, *Boedi Oetomo* and *Insulinde*, the offspring of the defunct Indian Party. The economic unrest consequent on the war of 1914-18 popularized nationalist ideas, but the native labourer was too poor and ignorant for any lively interest in socialism and the great bulk of the party cared only for nationalism with Islam as its symbol. The leader of the revolutionary section formed a Communist Party (P.K.I.) in 1919, which, two years later, broke off from the main body of *Sarikat Islam*.

New developments took place in 1922. Since 1908 there had been a small Indian Club in the Netherlands, comprising both Indos and natives. In 1922 the mixed club was transformed into a racial Indonesian Society under the leadership of Dr. Soekomo, and the members who came out to the East threw in their lot with the extremists. Largely under their influence the nationalist movement took over from India the policy of non-cooperation, and became more revolutionary. Another development was an extension of the movement in the Outer Provinces, and the representation of nationalists from all over the archipelago in the First All-India Congress. The post-war depression multiplied industrial disputes and a railway strike in 1923 was met with an amendment of the Penal Code by a provision imposing heavy penalties on action likely to dislocate economic life. For some time the leaders of the nationalist movement had been in touch with Russia, and this led to an understanding between the Indonesian and Chinese communists, which took effect

in a series of strikes, notably a great strike in the metal industry in 1925, forcibly suppressed under the new legislation. At length this phase of the movement culminated in a serious insurrection in Java at the end of 1926, followed by a second outbreak in Sumatra early in the following year. The criminal law was strengthened, Dr. Soekomo and other leaders were interned, and measures taken to improve the secret service and to restore closer contact between the officials and the people. Thus, for the time being, the revolutionary party was defeated.

The failure of the revolutionary movement allowed the older organization, *Sarikat Islam*, to resume its position as the main organ of nationalism, but, under the guidance of students from Europe, it paid more attention to promoting education and studying economic conditions by the foundation of schools* and study clubs. The first of these Study Clubs was founded in 1924 by Dr. Soetomo who when a student had helped in the foundation of *Boedi Oetomo* (see p. 96). In 1927 the Study Club in Batavia organized the P.N.I. (*Perserikatan*, later *Partai-Nasional Indonesia*) with the object of linking up all nationalist associations. At the same time *Sarikat Islam*, which had adopted a new style *Partai Sarikat Islam Indonesia* (P.S.I.I.), was hardening in the direction of non-cooperation. In the competition for extremism, agitation was making renewed headway in the P.N.I., until this party was broken up by the prosecution of its leaders in the beginning of 1930. The collapse of P.N.I. was soon followed by a rupture between *Sarikat Islam*, representing the religious aspect of nationalism, and the secular leaders, representing the material economic aspect. The secular party further broke up into three groups, differing not in aim but in method, and contending among themselves for the leadership of the movement. These three groups were the *Partai Indonesia* (P. I.), claiming to inherit the mantle of the P.N.I. and, like the P.S.I.I., standing for non-cooperation; the *Partai Bangsa Indonesia* (P.B.I.), representing the Study Clubs and a policy of conditional cooperation; and the *Partai Rajat Indonesia* (P.R.I.), advocating cooperation with the government but attracting little support among the people.

By this time the Netherlands Indies was succumbing to the general economic depression and, as this grew deeper, party politics lost much of their interest. *Sarikat Islam* managed to survive as P.S.I.I.

* The educational movement, founded by Dewantoro, a Javanese of noble birth, was known as *Taman Siswa* (Children's Garden). *Muhammedya* was also accomplishing much important social work.

but the secular groups broke up, amalgamated, dissolved and were re-constituted in a succession of kaleidoscopic changes. When the depression lightened, a more moderate or realist temper could be discerned. There was a general disposition to recognize the sovereignty of the Netherlands, but with the Netherlands Indies on a footing of equality with the mother country and with a right of self-determination (*zelfbeschikkingsrecht*) within the Netherlands commonwealth (*rijksverband*). Some considerable stir was caused by a petition to this effect by a nationalist leader, Soetardjo, which was approved by the Volksraad in September 1936. The moderate trend was visible in both *Sarikat Islam* and the secular parties. Although the main body of P.S.I.I. still held by the policy of non-cooperation, it did so only by evicting a strong group of cooperators, who in 1937 formed a new association, the *Comité Penjadar Barisan*. The chief secular parties were now the *Partai Indonesia Raja* (*Parindra*) which was non-committal as to cooperation; and the *Gerakan Rakjat Indonesia*, which accepted cooperation. The *Muhammedyah*, which voiced the specific interests of Islam and which had slowly been gathering force, has become in recent years the chief religious group.

RELATIONS WITH JAPAN, 1918-39

Relations with Japan came to demand serious attention with the growth of imperialist views in Japan and the development of Japanese trade in the Netherlands Indies during and after the war of 1914-18. When Great Britain, the United States, France and Japan concluded a treaty in 1921 for the maintenance of their rights in relation to their respective insular possessions in the region of the Pacific Ocean, the Dutch government invited their attention to Dutch claims, and in 1922 all four powers agreed to respect Dutch possessions in that region. The Dutch government was still apprehensive of Japanese encroachment, and in 1925 a special Adviser for Japanese Affairs was appointed. Then, with the economic depression and the devaluation of the yen in December 1931, the problem assumed new dimensions. In 1934 the Java Bank reported that it was 'practically impossible to name any category of goods in which European and American industry could compete with that of Japan'. Meanwhile the Japanese had been mastering the secrets of Dutch success in the cultivation of sugar, buying up quinine from the natives to the prejudice of the Dutch monopoly, and busily exploring the coasts throughout the archipelago under the colour of developing sea-

fisheries; a Japanese company had also taken over from Germany an extensive concession in New Guinea. At the same time they were getting into closer touch with the interior by opening, in all the larger towns, departmental stores in which they employed native assistants to sell cheap and attractive goods. These activities were financed by Japanese banks, of which the first had been opened in 1915; and the overseas trade with Japan was practically a monopoly of Japanese lines. This formidable and organized economic penetration naturally caused the Dutch to be apprehensive as to its political consequences, and further grounds for uneasiness were furnished by the growth in Japan of numerous South Seas Associations for the promotion of Japanese interests in southern Asia and the Pacific. One aspect of the situation to which the Netherlands Indies government took exception was that, while the imports from Japan were rapidly increasing, exports to Japan remained at the former low level or declined. The precautions to safeguard local interests by a system of quotas and licences (see p. 307) aroused resentment in Japan, and the problem shifted from the domain of economics to that of politics. Japan obtained permission in 1934 to send a delegation to Batavia, but the negotiations were inconclusive.

At that time Japan stood alone, whereas the Dutch could reckon on the support of Great Britain and the United States; they were able therefore to make a firm stand against concessions. In 1936 the tension was eased by an agreement as to their respective shares in the traffic between Japan and the Netherlands Indies, and from 1937 onwards the Japanese were fully occupied in China. Rumours of a secret clause relating to the Netherlands Indies in the Anti-Comintern Pact of 1936 between Germany and Japan, and continued agitation by Japanese politicians and journalists for a more active policy in the Netherlands Indies and especially in New Guinea, kept the Dutch on the alert, and stimulated them to take measures for the economic development of that island, previously neglected. It was not until after the outbreak of war between Germany and the Allies in 1939 that Japan took any further official steps towards the readjustment of relations, which in 1941 led to their invasion and occupation of the Netherlands Indies.

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Chapter IV

GOVERNMENT, ADMINISTRATION AND LAW

Introduction: Constitution: Influence of the Netherlands Government in East
Indian Affairs: Central Government: Local Government: Legal System:
Police System: Bibliographical Note

INTRODUCTION

The present system of administration is the result of a process of gradual evolution. Under the Dutch East India Company final authority rested with the directors; on the fall of the Company it passed to the home government, represented from 1815 by the Crown, and from 1854 by a minister responsible to the States-General. General administration now rests with the civil service, comprising two branches, the European and the native; the European branch derived originally from the mercantile agents of the Company, who came to be known as residents, and the native branch from the local sultans (in Java, regents) through whom the European officials dealt in their relations with the people. Up to about 1900 the tradition survived that the resident (or his European subordinates) should deal with the people only through their recognized or appointed heads and especially should abstain from interference within the village, 'the holy hamlet'. This tradition had ceased to correspond with fact, since from the 'seventies onwards, but especially after 1900, the spread of private enterprise over the whole archipelago placed new responsibilities on the officials and called for a more active and efficient local administration. At the same time the government was developing a keener sense of responsibility for the welfare of its subjects, and this likewise called for a more intensive and varied administrative policy. Efficiency in both economic progress and native welfare required decentralization: the delegation of powers from the home government to the colonial government, from the colonial government to local authorities, and from European to native officials. At the same time, local Europeans and later, under nationalist influences, natives, were demanding a share in government. It was mainly under these influences that the administrative organization has taken on its present shape.

CONSTITUTION

The constitution of the Netherlands Indies is based on the Fundamental Law (*Grondwet*) of the Netherlands of 1922, last revised in 1938. This defines the political status of the Netherlands Indies by stating that 'the Kingdom of the Netherlands comprises the territories of the Netherlands, Netherlands India, Surinam and Curaçao'. It also defines the position of the Netherlands Indies within the kingdom in respect both of government and legislation. The supreme government (*opperbestuur*) is vested in the Crown, that is, in the colonial minister, acting in the name of the Crown but responsible to the States-General; the ordinary government (*algemeen bestuur*), apart from powers legally reserved to the Crown, is vested in the Governor-General in such manner as may be prescribed by law, that is, by enactment of the States-General. With a view to enabling the States-General to exercise control, a clause provides that the Crown shall furnish it with an annual report (*Indisch Verslag*) on the government and condition of the Netherlands Indies. A similar distinction is drawn between supreme legislative power and ordinary legislative power, though the term supreme legislative power is not actually used. Supreme legislative power is vested in the Dutch legislature, which is empowered to enact the constitution of the Netherlands Indies, and also other matters if necessary; in such cases the representative body of the Netherlands Indies must first be heard. But the regulation of internal affairs is left to the local legislative organ, except for such matters and cases as are reserved by law to the Crown. With a view to enabling the home government to exercise control over local legislation, the act provides that any such regulation may be suspended by the Crown or annulled by law on the ground that it conflicts with the *Grondwet*, or with the general welfare.

As required by the *Grondwet*, the Netherlands legislature in 1925 enacted the constitutional law of the Netherlands Indies (*Staats inrichting van Nederlandsch-Indië* or, briefly, *Indische Staatsregeling*), subsequently amended in 1929, 1935, 1936 and 1938. This law laid down the powers of the Governor-General, of the Council of the Indies (*Raad van Nederlandsch-Indië*) and of the *Volksraad*; among other matters it defined the nature of the financial administration.

Forms of Legislation. The *Grondwet* recognizes legislation for the Netherlands Indies by the Dutch legislature and by the Crown, and also local legislation. In local legislation the *Indische Staatsregeling*

recognizes legislation by the Governor-General, together with the Volksraad or alone. All four classes of enactments are included under the term 'general regulations' (*algemeene verordeningen*). The Crown and the States-General acting together have powers, restricted only by custom, to frame laws (*wetten*) for the whole kingdom of the Netherlands, including the Netherlands Indies, and also for the Netherlands Indies alone. The Crown, so far as authorized by law, can issue decrees having the force of law (*algemeene maatregelen van bestuur*); this term covers original legislative acts, rules for the working of the laws and executive commands. The Governor-General and the Volksraad, acting together, can enact ordinances (*ordonnanties*) with reference to the internal affairs of the Indies and having the force of law. The Governor-General, so far as authorized by law, can issue government regulations (*regeringsverordeningen*) having the force of law; this term covers original enactments by the Governor-General and also rules for the working of ordinances.

INFLUENCE OF THE NETHERLANDS GOVERNMENT IN EAST INDIAN AFFAIRS

The government of the Netherlands is supreme in respect both of policy and legislation. The Crown and States-General formally act together only in legislation; but some enactments, such as the sanctioning of the estimates, belong in substance to the sphere of policy. The States-General exercises a further control over policy through its hold on the colonial minister, and through the annual report on the East Indies (*Indisch Verslag*). Although the only subject reserved by law for legislation by the Crown and States-General is the constitution of the Netherlands Indies, the home government also has the right to legislate on other subjects if necessary. Some measures of the Dutch legislature are binding for the whole kingdom, including the Netherlands Indies, such as the conferment of titles, coinage, copyright, and trade-marks. Certain enactments of the Dutch legislature prior to the *Grondwet* of 1922 are still in force; notably the Accounts Law of 1864, the Coinage Act of 1912, and the Mines Law of 1899. Other subjects reserved to the home legislature are tariffs, ports and banking. The intervention of the home legislature in East Indian affairs is chiefly apparent, however, in the annual debate on the estimates; this is a tradition which has not yet died out.

The powers of the Crown lie mainly in the sphere of policy and administration. Certain powers, such as control over foreign relations

and the navy, are reserved under the *Grondwet*. Others are expressly conferred on the Crown in the *Staatsinrichting*. Of these the most important are the appointment and removal of the Governor-General, the direction of his policy, and control over his actions by the acceptance of responsibility for them. Other powers of the Crown are the appointment and dismissal of the Lieutenant Governor-General—this office has been vacant for over a hundred years*—and of certain other high officials, including the President of the High Court of Justice, and members of the Council of the Indies. Under the Accounts Law of 1864 the Crown has like powers in respect of members of the Chamber of Accounts. The Crown is also charged with deciding points of difference between the Governor-General and the Volksraad in cases where agreement is required by law.

Legislation by the Crown consists mainly in the enactment of rules giving effect to laws passed by the Dutch legislature, but the Crown is also expressly empowered to frame regulations as to shipping, passports, and certain other matters. Further the Crown acts in a legislative capacity in special cases where the Volksraad does not assent to a draft ordinance laid before it by the Governor-General.

Acts of the Crown, executive or legislative, are in practice the work of the colonial minister responsible to parliament. Under the Dutch system of government there is no Premier, and no rule of cabinet solidarity; the colonial minister may therefore be changed without any reaction on the government as a whole. Another feature of Dutch government is the preference for ministers with expert knowledge, who need not even be members of the States-General; thus the colonial minister usually has colonial experience in administration, in the law, or in commerce.

CENTRAL GOVERNMENT

The powers of the government are vested in the Governor-General, who is responsible to the Crown and is required to observe instructions given by the Crown. In fixing the revenue and expenditure, and in legislation, he normally acts together with a representative body, the Volksraad. He is also assisted by an advisory body, the Council of the Indies (*Raad van Nederlandsch-Indië*).

The overseas commercial interests of the government are mostly

* It was revived on the Japanese occupation of the Netherlands Indies.

entrusted to the consular branch of the Dutch Foreign Office, but it has its own representatives attached to consulates in countries where it has special interests: in Durban for South Africa, in New York and San Francisco for the United States, in Buenos Aires for Argentina and in Alexandria and Cairo for Egypt. It makes a financial contribution towards the Dutch consulate in Jeddah and has a commercial agent in Singapore and in Calcutta. All the more important powers, and those with local interests, are represented in the Netherlands Indies by at least one agent, and some maintain a consul-general, with consuls at each of the large ports.

Governor-General

The Governor-General is appointed by the Crown. The only qualifications required by law are that he shall be a Netherlander and not less than thirty years old; but he is legally debarred from having any private financial interest in the Indies during his term of office and for five years afterwards. Custom has prescribed that after five years he shall ask permission to resign. Ordinarily he resides at Buitenzorg (Plate 26), but he also has a residence in Batavia (Weltevreden). The emoluments are normally f 15,000 a month, but are liable to vary with the economic conditions. The last six Governor-Generals up to 1940 included three politicians, of whom two had previous experience of East Indian affairs, and three were members of the diplomatic service, of whom one had formerly been a member of the Council of the Indies.

The functions of the Governor-General are best indicated by the term *landvoogd* 'guardian of the land', generally accorded to him in constitutional literature and in popular usage. He is responsible for advancing the welfare of the country, and takes such measures as he deems necessary to that end. In this capacity he is the supreme executive authority in the East Indies and publishes, and gives effect to general regulations, including laws, crown decrees, and ordinances; for these and other purposes he can of his own sole authority make rules having the force of law. If circumstances require he can take action which ordinarily proceeds from the home government, or for which joint action with the Volksraad is prescribed. Before taking such extraordinary action he is expected, or required, to consult the Council of the Indies. He is the commander-in-chief of the army, and of such naval forces as are in East Indian waters. He appoints all the more important civil, judicial and military officials, except so far as this is reserved to the Crown. His administrative powers extend

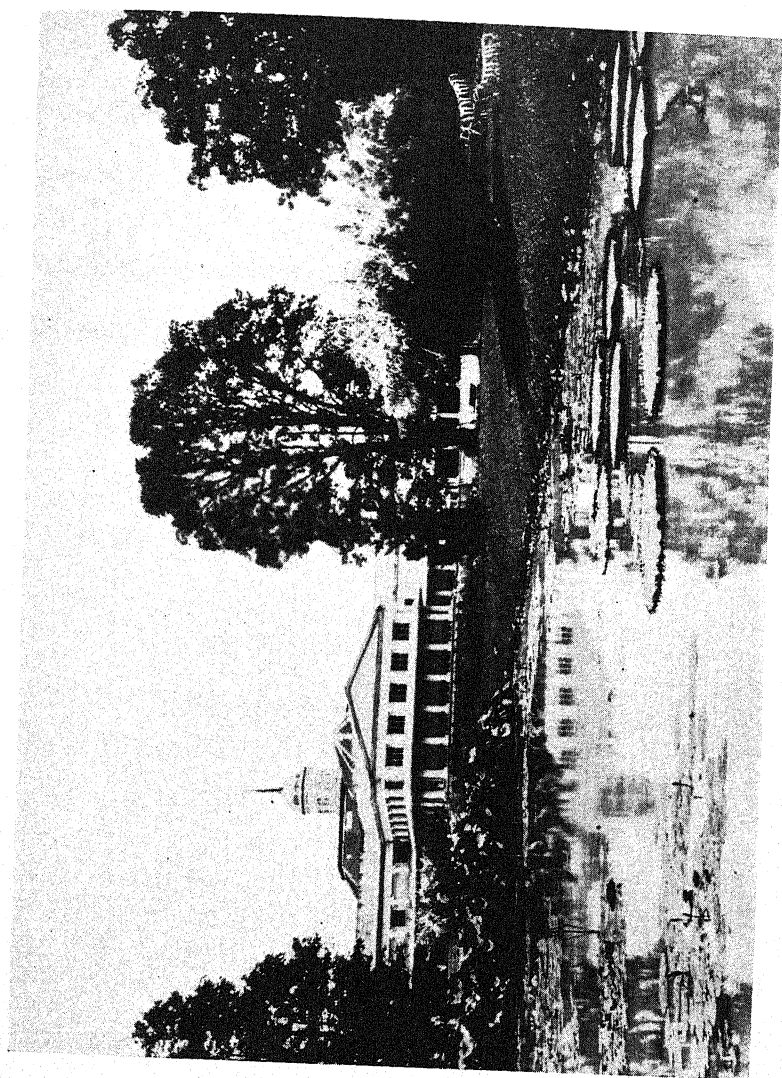


Plate 26. Palace of the Governor-General, Buitenzorg
The photograph shows the south front of the palace overlooking the lotus pond of the famous Botanical Gardens.

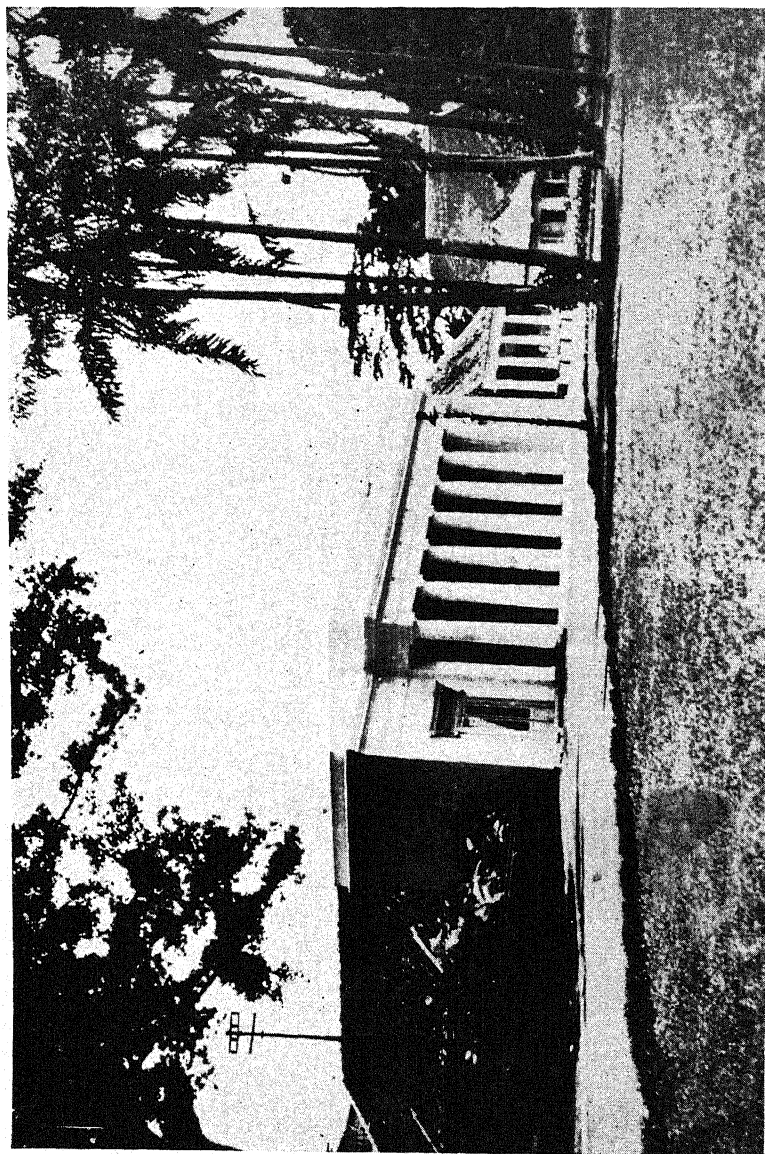


Plate 27. Volksraad building, Batavia

over the judiciary. He can decide conflicts of jurisdiction between the judiciary and the administration and between secular and religious, or civil and military courts. He has the right to pardon offenders and to grant exemption from prosecutions; in such cases he must consult the High Court of the Council of the Indies. If necessary, he can, with the consent of the Council of the Indies, intern or deport persons regarded as dangerous to peace and order; should the Council refuse assent he may refer the matter to the home government and, if urgent, may take action in anticipation of sanction. Thus, subject to approval by the Crown, not merely in the direction of policy but in everything, the final responsibility for all aspects of the administration rests with the Governor-General.

Council of the Indies

The Council of the Indies (*Raad van Nederlandsch-Indië*) consists of a vice-president and not less than four or more than six members. Until 1930 there were only four; the number was then raised to six to allow the inclusion of two natives, but in 1934 for the sake of economy was again reduced to four, including one native. All are appointed by the Crown, after considering recommendations made by the Governor-General in consultation with the Council of the Indies; but the Governor-General need not accept the advice of the Council, nor the Crown the recommendation of the Governor-General. The members are ordinarily chosen for their official experience, not necessarily in the civil service; as a rule, there is at least one member of the civil service, a member with judicial experience, and the former head of the secretariat. The period of office is five years.

The Council dates from 1609, and its powers and procedure are governed more by precedent and tradition than by law. It has no resemblance to a ministerial cabinet, with members separately responsible for different branches of the administration, but it examines as a whole all important matters from the standpoint of the general welfare. As a matter of practice the Governor-General consults it on all affairs of general or special importance, and in some matters is bound to consult it. Among these are instructions and regulations relating to the administration, drafted under his own orders; political relations with native princes and peoples; the general trend of measures regarding war or insurrections; extraordinary measures of importance; the appointment of high officials; proposals and communications to the Volksraad; proposals submitted by the

Volksraad; the adoption on his own authority of draft ordinances which the Volksraad has not accepted; and drafts of government regulations. Whenever the Council has been heard, whether by obligation or otherwise, this fact must be mentioned in the decree giving effect to the decision. The Governor-General, however, is wholly free to reject the advice of the Council, except in the following cases specified by law: cases of internment, banishment, or deportation; the grant of general pardons or withdrawal of prosecutions in respect to native princes and chieftains; dispensations from government regulations; and the application of the provisions relating to Europeans to persons who are not subject thereto. If the Governor-General cannot agree with the Council, he may appeal to the Crown, and in matters of urgency, can act in anticipation of sanction.

If necessary, the vice-president of the Council may be appointed to act on behalf of the Governor-General, or to officiate as Governor-General.

Volksraad

Until 1918 the government contained no element of popular representation, which so far had been extended only to local bodies. But in May 1918, a measure, passed two years previously by the States-General, took effect with the opening of the first Volksraad. The chairman is appointed by the Crown. At first there were thirty-eight ordinary members, half elected and half nominated, and including fifteen natives; its legal powers were purely advisory. The ordinary membership was enlarged to forty-eight in 1921, and to sixty in 1939. From the beginning, representation has been communal, with Europeans, Natives and Foreign Orientals separately represented; but the proportions and the methods of election have undergone changes. At present thirty members must be non-Dutch native subjects; at least twenty-five must be European-Dutch subjects, including Indos, and at least three must be non-Dutch foreign subjects, mostly Chinese. Of these some are elected: twenty natives, fifteen Dutch and three non-Dutch foreign subjects. The rest are nominated by the Governor-General. In the native states of Java the electorate consists of the four native princes and the senior of the two governors. Elsewhere, the electorate consists of the members of the local councils (see p. 119). The Dutch and the non-Dutch foreign subjects each form a single constituency for the whole of the Netherland Indies. In constituencies which return more

than one member, the system of proportional representation is adopted. Candidates are nominated and the voting is secret.

Membership of the Volksraad is confined to Dutch subjects, not less than twenty-five years old, who are also East Indian by parentage, birth or residence and not specially debarred as ex-convicts or dismissed officials. Domicile is forfeited by an absence of eighteen months, failing any presumption to the contrary. Membership is terminated by resignation or by absence from the East Indies for longer than eight months, the usual period of furlough. The Volksraad meets for a four year term, but all members are eligible for re-election. Government officials may be elected or nominated as members. In either case they can speak and vote freely, with full liberty to criticise government proposals, and there is no official block. Most of the members reside in Batavia, or not far off. Of the sixty-one members of the council as newly constituted in 1939 there were twenty-seven from Batavia, eight from Bandoeng, two from Buitenzorg, and only twenty-four from the rest of the Netherlands Indies. Owing to the transient character of the population few members sit in two or more successive councils. The members receive allowances to meet the expense of attending sessions (Plate 27).

There are two ordinary sessions of the Volksraad in each year. The first, which lasts from 15 June to 15 September, at the latest, is formally opened by the Governor-General and is mainly concerned with the consideration of the estimates; the second lasts from 10 January to 15 February. Extraordinary sessions can be called by the Governor-General, or at the instance of not less than one-third of the members; but the business is limited to the agenda. The sittings are normally public, but may be in secret. The quorum consists of half the members, and decisions are taken by a majority of votes. The Governor-General may attend the meetings, but has never done so; the government, however, may be represented by officers (*regeringsgemachtigden*) who can furnish information on its behalf; ordinarily this function is discharged by the departmental directors in respect of matters concerning their several departments. The Volksraad has power to reserve for itself in full session all matters with which it is concerned, and it tends to exercise this power on questions of principle or touching important native interests; for the most part, ordinary legislation is deputed to the College of Delegates (see p. 113).

The essential function of the Volksraad is to represent the interests of the Netherlands Indies and its inhabitants to the Crown, the

States-General and the Governor-General. For this purpose it is empowered to seek information from the Governor-General. The usual manner of representing its views to the Crown or the States-General is by an address; its views are communicated to the Governor-General in the form of a resolution. Legislative acts in which the Volksraad participates are termed ordinances. Ordinarily they originate in a draft by the Governor-General; but the assembly has itself the right to initiate legislation, and can amend drafts sent by the Governor-General. If the Volksraad and the Governor-General are in agreement, the ordinance is published by the Governor-General. The Governor-General may fix a period within which its decisions are to be announced. If his draft ordinance is not accepted within the stipulated period, or is amended in a form which he cannot approve, or is rejected, he may return it within six months for reconsideration. If agreement is not yet obtained the Governor-General may submit the draft to the Crown for enactment by decree. If the Volksraad does not announce its decision within such period as the Governor-General may prescribe, or if the matter is urgent, he may publish the ordinance on his own authority.

Financial measures take effect by legislation, but the procedure is somewhat different. For each administrative department a separate estimate is laid before the assembly on the opening of its first annual session; supplementary estimates, if necessary, are presented subsequently. Estimates adopted by the Volksraad are published by the Governor-General, but do not become law until approved by the States-General. Similar arrangements obtain with regard to other financial measures, such as the negotiation of public loans.

In general, the Volksraad is critical, and often sharply critical, of official policy and measures, and it is noteworthy that the official members are among the keenest, and naturally the best informed, critics of the government. The extreme freedom with which the members express their personal opinions supports the accepted view that criticism need not be prejudicial to the career of the official who voices it. Not only is there no official block, but the European members represent a wide variety of political views and by no means all belong to the right wing. Inevitably a system which allows the Volksraad no direct responsibility encourages irresponsible criticism, but criticism in the chamber is tempered by friendly intercourse in the lobbies, and the answers to criticism teach members that the task of the government is not so easy as it may seem. Thus both the government and the people are brought into closer contact with

reality. Moreover, indirectly the chamber exercises considerable influence over the government, as is indicated by the large measure of agreement obtained between the government and its critics. Among the thousands of items in the departmental estimates passed during 1928-38, in only eighty-four cases did the government and the Volksraad disagree; in one case a whole departmental estimate was rejected, thirty-one proposals of the government were negatived and fifty-two amendments by the Volksraad were not accepted by the government. Out of some 1,450 ordinances during the same period there were only about two dozen in which recourse was had to exceptional measures for overruling the assembly. On the whole there seems ample justification for the general opinion that the creation of the Volksraad has given new strength to the government, by making known the needs and wishes of the people. But the present division of powers is admittedly provisional and educational.

College of Delegates

A characteristic feature of all representative organs in the Netherlands Indies, copied from Dutch practice, is the delegation of most of the business to a small permanent committee. This enables the other ordinary members to take part in public life without undue demands upon their time. In the Volksraad this committee is known as the College of Delegates (*College van Gedelegeerden*), which consists of fifteen members who are elected in the first session of the newly formed chamber for its whole life of four years. In addition to the allowances drawn as members of the chamber the delegates draw a monthly salary, and allowances for residence and loss of income. The chairman of the Volksraad is also chairman of the College, but one of the members is elected as deputy chairman. The College sits throughout the year, except for a month's vacation about May. It exercises the full powers of the Volksraad, except during the regular sessions, but machinery exists whereby, during or between the sessions, subjects can be reserved for consideration by the full chamber.

The Secretariat

Although the constitution refers to secretaries, it does not mention the Secretariat as an organic body. But, through its function as a clearing house for departmental activities, and because of the intimate contact between the Chief Secretary and the Governor-General, the Secretariat came to be the hub on which the administrative machinery revolved. Since the introduction of a popular element

into the government, it has lost much of its importance, but there are still complaints that it exercises an undue influence that is unwholesome owing to a lack of contact with native life.

The superior grades in the Secretariat are recruited and trained in the same manner as officers of the European civil service in the Netherlands Indies, but the two services are quite distinct.

Departmental Organization

The constitution of several departments to deal with the various functions of general civil administration dates back to the Constitution of 1854. Since 1933 there have been six civil departments, dealing respectively with Justice, Finance, Internal Administration, Education and Religion, Economic Affairs, Communications and Public Works. Each of these departments is under a director, appointed by the Governor-General. There are two other departments, for War and Marine, of which the heads are nominated by the Crown. The directors enjoy a great measure of independence, and appoint most of the departmental employees. They are concerned not merely with the execution of tasks allotted to them, but contribute largely to the origination of projects, which they submit for consideration by the government. When a department is interested in the passage of a measure through the Volksraad, the director may attend to furnish any necessary explanations. The constitution provides for a council of departmental heads, but this has little significance, as it does little more than deal with matters common to two or more departments, mainly of a personal character. On such matters any member may record his views for circulation, but the council never meets. Each department comprises several distinct services or branches under special or local heads (inspectors). Subordinate officials of the various departments are widely distributed over the archipelago. The departmental officers work in close relation with the local officers of the civil service, through their departmental head and through the Secretariat. This general plan resembles that of British India; but in the Netherlands Indies the departmental organization has a larger place, the departmental officers are at least on the same footing as those of the civil service and, until recently, have been more highly qualified and better paid.

LOCAL GOVERNMENT

Politically it is necessary to distinguish between the government domain, under direct rule and solely under Dutch authority—such as

the government lands in Java or the Residencies of Lampoeng and Djambi in Sumatra—and the native states, under indirect rule. The native states differ greatly in area, population and political importance, but are all, in theory, ruled along native lines by their own princes or chieftains. In Java, the whole country is under direct rule, except for four native states in Soerakarta and Jogjakarta. In Sumatra the south and west are mainly under direct rule, and the north and east under indirect rule. In Borneo, almost the whole of the western province is under indirect rule. Celebes is all under indirect rule, except for small tracts round Makassar in the south and Manado in the north. All the rest of the archipelago is under indirect rule, except Bali, Lombok and the islands east of Timor, including Amboina, Ceram and Banda. Territories may be transferred from direct to indirect rule, or *vice versa*; within the last few years native states have been restored in certain islands.

In the native states the laws and regulations of the Netherlands Indies (*algemeene verordeningen*) apply only in so far as they are compatible with the right of self-government. Formerly the relations between the government and the native states were regulated in great detail in long contracts. Under the influence of Snouck Hurgronje, a 'short declaration' has ordinarily been substituted since 1898 (see p. 92). Within the next thirty years, out of a total of 282 states, all but fifteen had subscribed to the 'short declaration'. Rules governing relations with the native states under the 'short declaration' were published in 1919 and revised in 1927.

The political distinction between direct and indirect rule is, however, of legal rather than practical interest. For, in those parts under direct rule, it has always been and still is the Dutch policy to leave the people so far as possible under their own recognized or appointed heads, and in those parts under indirect rule the native ruler is expected to accept the advice of his Dutch adviser and has little freedom of action. Further, the authority of rulers of native states extends only over their own subjects, and not over Europeans, Foreign Orientals or natives other than their own subjects. Everywhere, whether direct or indirect rule prevails, matters relating to Europeans are dealt with so far as possible by European officials, and Foreign Orientals remain, so far as possible, under their own recognized or appointed heads. The political basis of the whole Dutch system is now, as in the past, the rule of 'like over like'.

In Java the native states and the tracts under direct rule fall into separate administrative units, but outside Java the same adminis-

trative unit may contain both areas under direct rule and areas under indirect rule. For many reasons it has long been the practice to distinguish Java and Madoera from the other islands, which are known collectively as the Outer Provinces; but this distinction has no basis in law. For administrative purposes the whole area is divided into *gewesten*. Until recently all the *gewesten* in Java and Madoera were termed Residencies; in the Outer Provinces the *gewesten* were ordinarily Residencies, but three of them regarded as more important were termed Governments. On this arrangement the Governor-General was the central focus of a large number of independent charges. The process of decentralization has reconstituted the administrative system on a new model based on that of the Netherlands, where the central provincial and local governments form an organic whole.

By the amendment of the Constitution of 1854 in the administrative reform act of 1922, it was provided that the territories of the Netherlands Indies should be distributed into 'provinces and other *gewesten*'. This provision was taken over in the new Constitution of 1925. The intention was to group the existing charges into larger units under Governors and, as circumstances allowed, to convert these Governments into Provinces, by making over purely local affairs to a provincial government, consisting of the Governor and a representative provincial council (see p. 117). In West-Java a Governor was appointed in 1925, and the Government was converted into a Province from 1 January 1926. Four other Governments were formed in Java in 1928: Midden-Java, Oost-Java, Soerakarta and Jogjakarta. Oost-Java was converted into a Province with effect from 1 January 1929, and Midden-Java from 1 January 1930. Soerakarta and Jogjakarta are native states and there is no intention of giving them a provincial form of government; it was chiefly out of consideration for the native rulers that the local Resident was given the more dignified title of Governor. In the Outer Provinces there was some delay in the introduction of the new model, owing to the difficulty of framing suitable units for rule along provincial lines, and an experiment in the constitution of a Government in the Moluccas in 1926 was regarded as unsuccessful. Finally, in 1938, three Governments were formed: Sumatra, Borneo and the Groote Oost. The Governors have been given representative councils, but these are purely advisory and the provincial type of government, with a responsible council, has not yet been introduced. Thus the *gewesten*, the major units of administration, are now either Provinces

or Governments, and the former Residencies, though still popularly known by that name, are technically no longer *gewesten* but Divisions (*afdeelingen*).

The Provinces and Governments of the Netherlands Indies with their area and population are given in the following table.

Gewest	Status	Area (sq. miles)	Population (millions)
West-Java	Province	18,100	11.4
Midden-Java	Province	10,876	11.1
Oost-Java	Province	18,503	15.0
Soerakarta	Government	2,332	2.5
Jogjakarta	Government	1,224	1.5
Sumatra	Government	182,862	8.2
Borneo	Government	208,282	2.2
Groote Oost	Government	293,095	8.6

Source: *Statistical Abstract of the Netherlands Indies*, 1940, pp. 2, 7 (Batavia, n.d.)
The population figures are for 1930.

Administrative Organization in Java and Madoera.

The three provinces of West-Java, Midden-Java and Oost-Java are each under a Governor, who is at once the agent of the central government and the chief executive of the self-governing provincial government (Fig. 9). The provincial council, over which the Governor presides, has a large measure of autonomy in local matters and also acts as the local agent of the central government. Most of the work of the council is ordinarily delegated to a small committee, termed the college of deputies (*Gedeputeerden*). The electorate for the provincial council consists of the members, elected and nominated, of the regency and urban councils. The Dutch and Foreign-subject members are each a single constituency; the native members are grouped in several constituencies, one for each Residency, with a varying number of representatives for each constituency according to its population. Where there is more than one member for a constituency, the election is by proportional representation. The usual qualifications for a member are that he shall be a male Dutch subject, twenty-five years of age, resident within the Province and possess a satisfactory knowledge of Dutch. As regards the nominated members, the local Governor submits two names for each vacancy, and the nomination is made by the Governor-General, after consulting the Council of the Indies.

Each of the Provinces of Java and Madoera is divided into Residencies, under European officials called Residents; there are subordinate European officers, the Assistant-Resident and the

Controleur (Inspector), but these have no independent charge and are merely assistants to the Resident. The Residencies are divided at present into seventy Regencies, which differ greatly in area and population; for example, Koedoes in Midden-Java has an area of

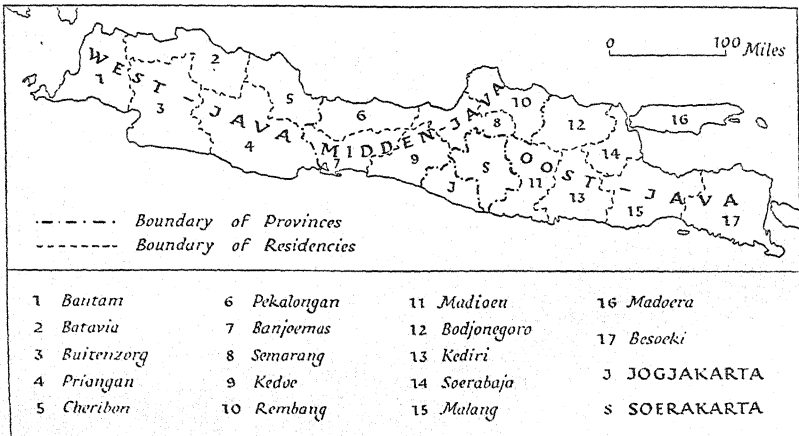


Fig. 9. The administrative divisions of Java

Source: *Atlas van Tropisch Nederland*, plate 19 (Batavia, 1938).

less than 250 sq. miles and Krawang in West-Java has an area of close on 1,950 sq. miles; Pandeglang in West-Java has a population of little over a quarter of a million and Malang in Oost-Java has nearly one and a quarter million. Each Regency is under a native official, the Regent. The Regency is subdivided into Districts, each under a district-head (*wedana* or *wedono*) and these into sub-districts, each under a sub-district head (assistant-*wedana*). Within each sub-district there are the 'native communities' (*inlandsch gemeenten*) or, popularly, villages (*desa*).

A regency council assist the Regent in his administrative duties. This council has similar powers to that of the provincial council; much of its work is carried out by a committee called the college of commissioners (*Gecommitteerden*). The elections for the native members of the regency council are indirect; the primary voters choose an elector for the members of the council. The usual qualifications for a native to vote are that he should be twenty-one years of age and entitled by village custom to vote in the election of the village headman. For every 500 inhabitants there is one elector. The usual qualifications for an elector are that he should be a male

local resident, twenty-five years of age, and able to read and write the vernacular in the Roman script. The nominated members of the council are chosen by the Governor of the Province from among two people recommended by the Regent for each vacant place. The proportion of nominated to elected members varies, but is ordinarily less than one-half.

The highest native official in the Regency after the Regent is the *patih*, a general assistant who may do most of the Regent's work. The *patih* is usually in charge of the district which includes the Regency headquarters, and the district officer similarly has charge of the sub-district that includes the district headquarters. These native officers, from the Regent downwards, constitute the Native Civil Service. Alongside them are officers of the European Civil Service. In each Regency there is an Assistant-Resident, who is directly subordinate to the Resident, but is merely the adviser of the Regent. Sometimes the Assistant-Resident has charge of more than one Regency; in that case he usually has an Inspector to help him in the out-station.

The Regent and district-head have petty criminal and civil powers which enable them to dispose, informally and summarily, of village disputes that the local elders cannot settle. But these magisterial and judicial powers are of very minor importance. Primarily all the administrative officers are officers of police, or rather, of policy; they are not servants of the law but agents of the state. They are indeed charged with the investigation and prosecution of crime, and the Assistant-Resident and Regent are both linked up with the field police (see p. 128). Their primary function is to give effect to the policy of the government, mainly by authoritative advice, admonition, encouragement and other forms of 'gentle pressure' (*printah aloes*). It is through this agency that the government promotes village schools, better agriculture, the care of cattle, sanitation, and hygiene.

Village Government. The village is the fundamental unit of administration in Java and Madoera. It has been a tradition of Dutch rule to abstain from interference in village affairs except in so far as the interests of the central government required. The village government consists of a headman and a number of subordinate officers. The headman has a double function. On the one hand he is the organ of social will in respect of internal economy and on the other hand he is the instrument of authority in matters in which the government is concerned. The right to vote in the election of a headman rests with those who were formerly subject to compulsory services

(*herendiensten*), or specially exempt therefrom. As the liability to render these services lay in some parts on the individual, in others on the household, and in others on the right to occupy village land, there is a great local diversity in the village franchise. This reacts on the constitution of local bodies of a higher order, such as the regency council, for which the primary electors are those entitled to vote for the village headman.

The constitution of the village government is formulated by the regency council, which also regulates the appointment and removal of the members and their remuneration, but in all these matters ordinarily follows village custom. The headman derives a part of his emoluments from a commission on the taxes which he collects for the central government, chiefly the land revenue; but he, and other members of the village government, are often remunerated by the assignment of land, and by custom are entitled to various services by the villagers. The village as a legal unit has its own institutions, finances, domains and other properties. The headman is responsible both for the good conduct of the villagers and for the welfare of the village. The village government is charged with the maintenance of village works, such as roads, bridges, building, markets, irrigation channels, and tanks, and with the administration of village lands, so far as these are not held in individual possession. Each village is expected to prepare a budget and keep accounts. For matters of importance there must be a general village assembly, duly summoned by the village government, and a record of its proceedings is kept to show the number present, and the result of votes taken. Gradually, however, many officers came to hold that much of the procedure was far too elaborate, and that the ordinary villager had little interest in amenities which European officials regarded as conducive to village welfare, and urged on the people by the exercise of 'gentle pressure'. There has therefore been a reaction of recent years in favour of leaving the villages to manage their own affairs with less interference by officials. Thus the village community is now regarded as of little value as an instrument of uplift, and, moreover, under modern influences old corporate tradition is weakening. At the same time it is difficult to abstain from intervention. Departmental subordinates of the agricultural, veterinary, credit, education, public health and other services need the assistance of officers of the administrative civil service, without whose help they can accomplish little; in the interests of the general public it is necessary to enforce a common minimum of social welfare which the people themselves do not appreciate.

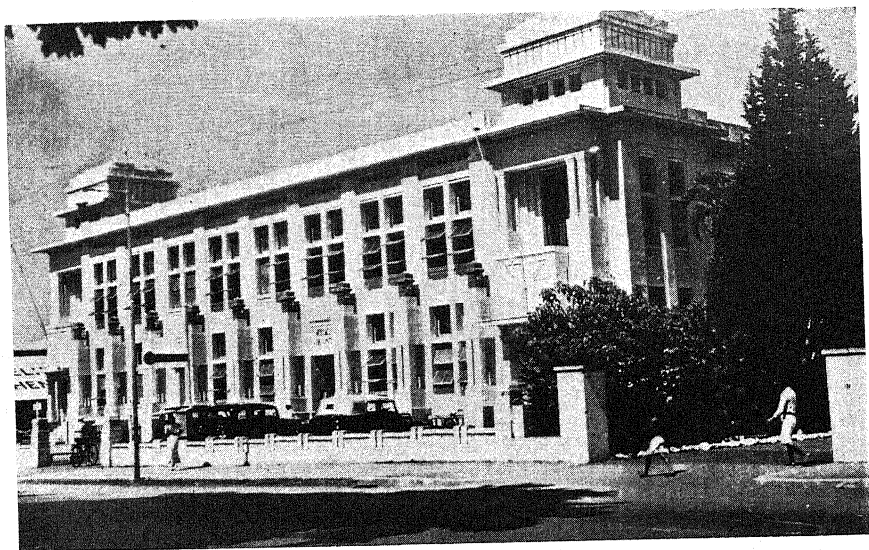


Plate 28. Offices of the Preanger Resident, Bandoeng

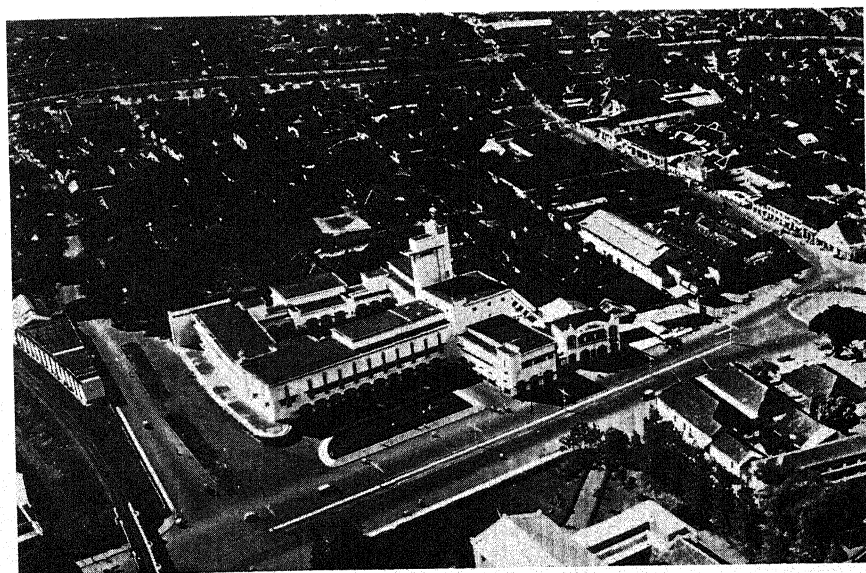


Plate 29. Offices of the Governor of Oost-Java, Soerabaja

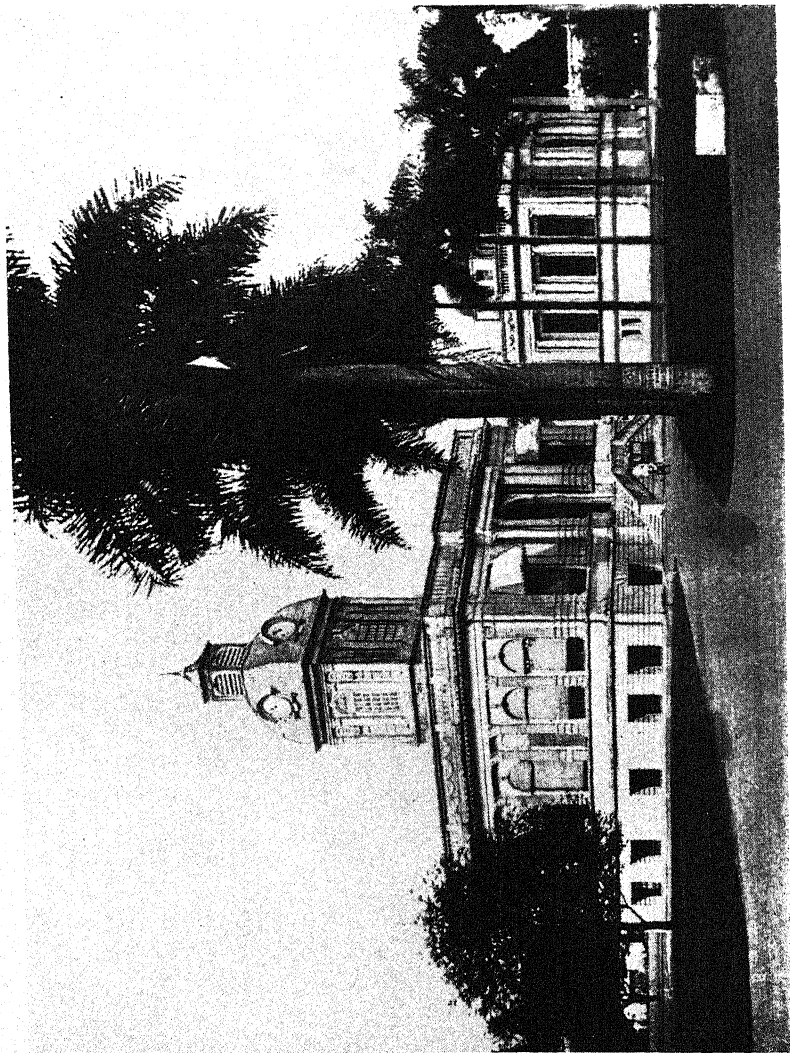


Plate 30. Town Hall, Medan

Officers of the civil service, therefore, if less enthusiastic and optimistic than before, are little if at all less active in their dealings with the village; in these activities, however, European officers tend to play a smaller, and native officers, a larger, part.

Vergaderingen. The chief instrument of government policy in Java and Madoera is the *vergadering*, or assembly. At least twice a year, and usually once a month, the Resident holds a *vergadering*, attended by his European and native subordinates, and such departmental officials as he may invite to discuss administration and policy. About once a month the Regent holds a similar *vergadering*, attended by his native subordinates, to which the Assistant-Resident (and Controleur, if there is one), and also the local departmental subordinates, are invited. Similarly once a week, the sub-district head holds meetings of his village headmen. All down the scale, representatives of the various departments, charged with agriculture, cooperation, veterinary work and so on, have opportunities in the *vergadering* of explaining what the government is trying to do for the people, and how the people can help; and the local administrative officer is present to support them with his authority.

Municipal Government. The first municipalities were created in 1905, but the transfer of functions and powers to them was a slow and gradual process. In the present structure of government, as laid down in the Constitution of 1925, the municipalities occupy a position similar to that of the Regency. The municipalities are governed by councils, each with a mayor at its head, which differ from the provincial and regency councils in all of its members being elected. The elections for the council are direct and by separate communities. The usual qualifications for an elector are that he should be twenty-one years of age, a resident within the urban area, and able to read or write Dutch, Malay or the local vernacular, and possess an income of at least f 3,000. The election in the Dutch and Foreign-subject communities is by proportional representation from among a published list of candidates; in the native community, the election is by a simple majority and the town is, if necessary, divided into electoral areas with one member for each area.

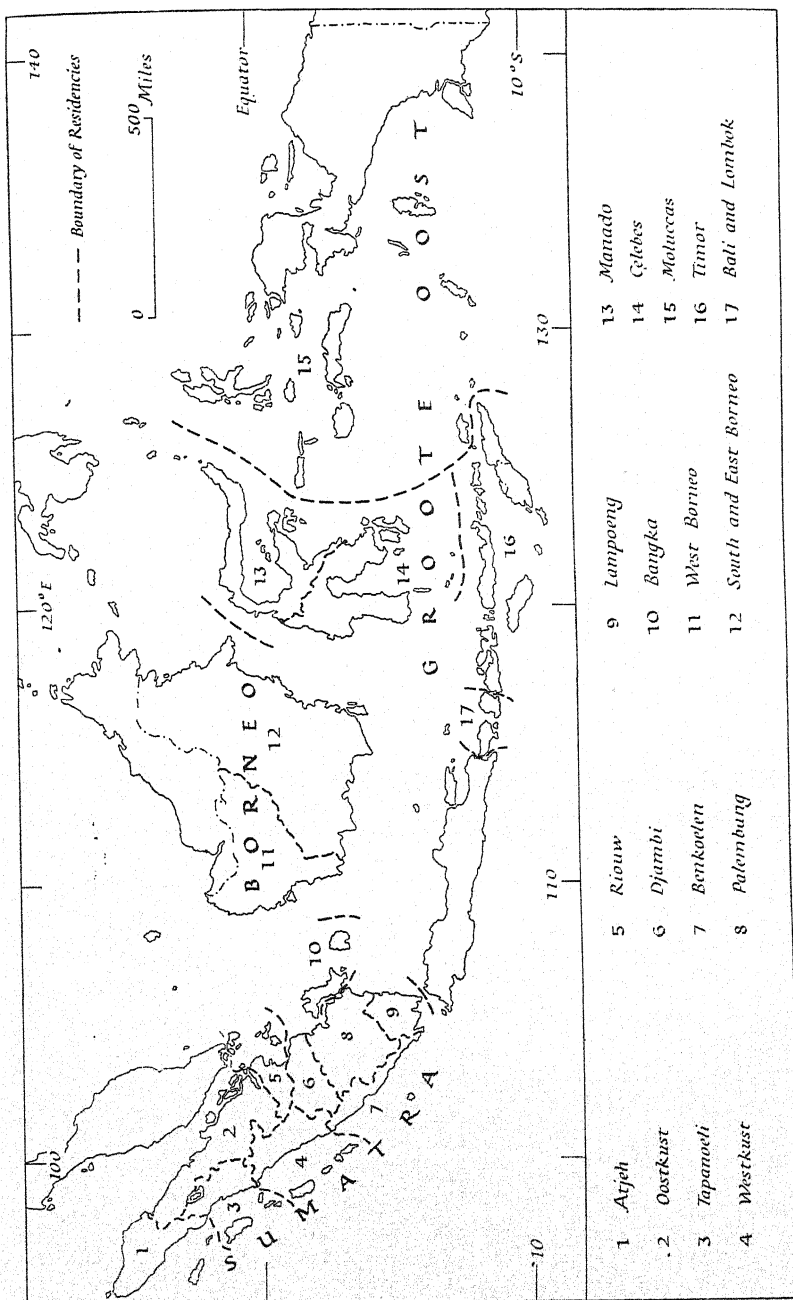
Administrative Organization in the Outer Provinces

In the Outer Provinces the spirit of the administration is similar to that in Java but the form is different. Geographical and other considerations enhanced the difficulty of forming Governments and Provinces on the same plan as in Java; only in certain localities were

there historic units on a smaller scale corresponding to the Regencies of Java; and in most places the unit of social life was the tribe and not the village as in Java. The three Governments of Sumatra, Borneo and the Groote Oost, as constituted in 1938, are formed of a number of Residencies divided into two or more Divisions, each under an Assistant-Resident (Fig. 10); and these again comprise sub-divisions, each under an Inspector, or a European officer locally recruited and of lower status, the *Gezaghebber*. These are all officers of the European Civil Service, and they discharge the functions which in Java are distributed between the European and Native Civil Service. In most Residencies in the Outer Provinces, there is a Native Civil Service, corresponding loosely to that of Java, but purely official and without hereditary ties or claims. This Native Civil Service links up the European Civil Service with the local native communities, often tribal rather than territorial. The subdivision may comprise one or more states (*landschappen*)—though exceptionally a large *landschap* may cover more than one subdivision—or a larger or smaller number of native communities under their customary heads. For linking up the native community with the government the machinery is very similar to that of Java, with an ascending scale of *vergaderingen*.

The rural councils that formerly existed in many parts of the Outer Provinces are being remodelled as Urban Communities (*Stadsgemeenten*) or else absorbed in Group-Communities (*Groepgemeenschappen*). Some of these new Group-Communities cover the whole and others merely parts of a Residency. The council in the Group Community is autonomous in respect of local affairs, and has some right of supervision over any urban councils within its jurisdiction. In those areas, therefore, where it is possible to constitute Group-Communities, there is a quasi-organic system of local autonomy on much the same general lines as in Java. In some regions such councils are unsuitable, though it is nevertheless desirable to relieve the central government so far as possible from the care and charges of local administration. To meet this difficulty such areas are being constituted as autonomous tracts (*landstreken*) with separate finances, but with control of local affairs managed by the local representative of the central government. This course of reforms, which only began in the middle of 1938, is being gradually extended, but it is not yet complete.

In the Outer Provinces there is a wide variety of local groups, sometimes of greater importance and covering a much wider area than the village in Java. The new Village Ordinance for the Outer



or Java, see Fig. 9.
 Fig. 10. The administrative divisions of the Outer Provinces
 Source: *Atlas van Tropisch Nederland*, plates 9, 11, 23 (Batavia, 1938).

Provinces, which took effect from 1 January 1939, distinguishes the traditional and the modern types of village and at the same time it makes provision for the transformation of the one into the other. The traditional village, as in Java, is endowed with a legal personality; the headman and other officers are appointed in accordance with rules formulated by the Resident with regard for local custom; the headman is responsible to the central government for the maintenance of law and order, but the constitution and powers of the village officers and the village are determined by custom, subject to the power of the Resident to overrule any measure contrary to official regulations or the general welfare; the village may also be empowered to impose taxes. Should the village express a wish to be transformed into a modern village, the change is notified by the Governor. Thereupon the village government is vested in the headman and village council, with the headman as chairman and executive. The council holds meetings open to the public. Its resolutions only take effect after registration by the local sub-district officer, who must satisfy himself that they are not invalidated by any irregularity of procedure. The council can raise taxes for the cost of administration, and for educational and other purposes. It is required to frame a budget and to maintain accounts. All moneys accruing to the village must be paid into a village treasury. The council can also frame regulations imposing penalties up to three days' imprisonment or a fine of *f* 10. Before rules imposing taxes or penalties are passed, the council must hear objections in a public assembly (*volksvergadering*). Such regulations are submitted for approval to the Resident, who must consult the Group-Community or other higher organ of local government, if such exists; they are then given the force of law by publication in the general village gazette. Thus the Village Ordinance for the Outer Provinces aims at accomplishing for selected villages what the old Village Ordinance attempted for all villages in Java.

LEGAL SYSTEM

The legal system, like the other branches of the administration in the Netherlands Indies, reflects the Dutch tradition of indirect rule, though in some respects the arrangements differ for the three main classes: Europeans, Natives and Foreign Orientals. Although the principle of equal law and identical courts for all classes has never been accepted, all have alike been subject since 1918 to a common penal code; differences, however, persist in criminal procedure.

For Europeans the civil law follows closely the Dutch law, and the same law is applied to individuals, natives or other orientals, who are registered as Europeans. Civil law for natives is their customary law. Civil law for Foreign Orientals is likewise, in principle, their customary law; but those cases that come before the courts deal mostly with commercial matters, to which the European codes apply, so that little of their customary law remains.

The organization of the judiciary exhibits a corresponding diversity. The main distinction is between courts which administer justice in the name of the Crown, of which some deal with natives according to their customary law (*inlandsche rechtspraak*), and those which derive their authority from the native community (*inheemsche rechtspraak*). Thus there are Government Courts with jurisdiction over Europeans; Government Courts with jurisdiction over natives; and Native Courts. Government Courts, both for Europeans and natives, may be found within the native states, and Native Courts may be found within the government domain. There are also Muslim Courts and Military Courts. Altogether, in the words of a leading Dutch jurist, there is a 'bewildering variety' of law and law courts. All that is here possible is to summarize in broad outline the main features of the system, neglecting minor racial or local differences.

High Court of Justice

The High Court of Justice (*Hooggerechtshof*) is the supreme court. It is the court of first instance in cases where high officials are prosecuted on criminal charges, but its ordinary activities relate to general supervision over judicial administration, either by admonitions, or by the trial of cases on appeal, or in revision on points of fact, or in cassation on points of law. It consists of a President, Vice-President and six members. Attached to it is the Procureur-General, who plays an important part in general police administration in direct subordination to the Governor-General. He is the head of the organization charged with the prosecution of offenders, which works through officials (judge-advocates or court-prosecutors) attached to the lower courts; he is also the head of the judicial police, that is, the police concerned with the investigation of offences and can give instructions to the administrative police, that is, the Residents and their subordinates.

Courts of Justice

There are six Courts of Justice (*Raden van Justitie*), three in Java

and three in the Outer Provinces; in each there is a bench of judges who must all be professional lawyers. Since 1917 membership has been open to natives, but in 1941 there was only one native member. These courts hear in the first instance cases where either party is subject to European law, and which are above the competence of lower courts; also the more important criminal prosecutions against Europeans. They hear civil appeals from Europeans and natives; on the criminal side they hear cases on appeal or revision from natives and Foreign Orientals, and also appeals by Europeans from sentences of lower courts in the Outer Provinces so far as a right of appeal exists.

Residency Courts and Native Benches

The Residency Court (*Residentiegerecht*) and Native Bench (*Landraad*, or *inlandsche rechtbank*) are the next grade. In the Residency Court a single judge, with the assistance of a bench-clerk or registrar (*griffier*), decides civil cases concerning Europeans up to a value of f 1,500; in parts of the Outer Provinces, he also tries minor criminal charges against Europeans. He should be a professional lawyer, though in the Outer Provinces he may be a member of the civil service. About half these judges are Europeans and the rest natives, including one or two Chinese.

The same officer presides over the *Landraad*, which is the ordinary court of first instance in the civil suits of natives, and also tries criminal charges (except for petty misdemeanours) against natives and Foreign Orientals. The other members of the bench are usually natives; in the larger towns they may be permanent and paid, but elsewhere they consist of local dignitaries. In districts where there are many Chinese, some members may be Chinese, and in the European centre is the Oostkust Residency of Sumatra, there are European members. Together with them sit a prosecuting magistrate (*djaksa*), often termed a native officer of justice, and a *griffier*.

In Java there is a *Landraad*, and consequently a Residency Court, at the headquarters of each Regency, but the President is usually in charge of two, or even three courts. In the Outer Provinces there is one or more such courts in each Residency.

Police Courts

Next below the *Landraad* come the Police Court (*Landgerecht*). In these courts the magistrate, sitting alone but with the assistance of a native official entitled the *fiscaal griffier*, disposes summarily of

petty misdemeanours, irrespective of the race of the accused. The magistrate is either a member of the judicial service or a local administrative officer of the European civil service, but an officer of the native civil service may act as an additional magistrate. Sometimes retired officials are appointed. In some places in the Outer Provinces the place of this court is taken by a magistrate's court (*magistraatsgerecht*) in which the presiding officer has similar powers but also tries petty civil cases. The procedure in the *Landgerecht* is very summary, and there is no appeal against its sentences, but the High Court may inspect its registers.

In Java there is a police court at the headquarters of each Regency, but the magistrate also tries cases at other places while on tour. In the Outer Provinces the arrangements are generally similar.

Petty Government Courts

The Regency and District Courts in Java are of a subordinate standing and there are corresponding courts in the Outer Provinces. These dispose, in a very informal manner, of petty civil cases between natives, and petty cases of theft and mischief. In the Regency Court the Regent, represented sometimes by his head assistant, the *patih*, gives the decision, but seated with him as assessors are such local dignitaries as custom prescribes, and also the *djaksa* (court prosecutor) and the Regency cleric (*panghoeloe*). An appeal against the decision can be made to the *Landraad*. The District Court resembles the Regency Court, but is presided over by the head of the District, and has even smaller powers. Appeals can be made to the Regency Court. In the Outer Provinces the corresponding courts are often native courts, deriving their authority from the native ruler or from custom; such courts may have wider powers over the natives than the Regency and District Courts in Java.

Religious Courts

All civil cases between Muslims, so far as customary law (*adatrecht*) prescribes, come before the religious court, except where otherwise provided by ordinance. The religious court of first instance is the *Priesterraad*, attached to each *Landraad*, and with the same jurisdiction. Its scope is restricted to such matters regarding marriage and divorce as require the intervention of the religious court. The court consists of a Bench, with the head *panghoeloe* as president and three to eight Muslim notables as members. An appeal can be made to the

Court for Islamic Affairs, which sits at Batavia, and consists of a president with two members and with the assistance of a *griffier*.

Military Courts

For the trial in the first instance of criminal charges against soldiers and sailors there are special courts, respectively the *Krijgsraden* and *Zeekrijgsraden bij den Landmacht*. An appeal lies from these courts to the High Military Court (*Hoog-Militair-Gerechtshof*) in Batavia, which also takes cognizance in the first instance of charges against officers of specified higher ranks.

POLICE SYSTEM

Until quite recently there was no police service apart from the civil service and their orderlies, the *bestuurspolitie*, who were largely ornamental. In addition to these there was in every village a village policeman, subordinate to the headman, and there were also special guards for the protection of forests and plantations; moreover the villagers had to serve their turns in watch and ward. Not until 1897 was there a first attempt to create a police force, the General Police, but most of the men still remained attached to civil officers. Then, in 1911, the growth of unrest, consequent on the nationalist movement, led to the formation of a Town Police. Up-country the civil officers still depended on the *bestuurspolitie*; but although these grew in numbers, disaffection grew still faster, and many tracts were getting out of hand. In 1921, therefore, a regular police force was organized for rural areas, the Field Police, similar to the Town Police and, like them, forming a part of the General Police. In Java each Regent within his Regency is nominally the head of the Field Police; but control and administrative routine rest with the Assistant-Resident, and drill and discipline with a special officer, ordinarily a European inspector, who is in charge of thirty to fifty men. The investigation of crime, however, still rests in the first instance with the village police. If the Regent wishes to employ any of the regular police, he must ask the Assistant-Resident to place them at his disposal, when the Assistant-Resident is bound to comply with his request. In the Outer Provinces the police organization is in general similar, but there is also a military police, recruited mainly in Manado and Amboina, charged with quasi-military duties in areas that are not as yet completely pacified.

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Chapter V

GROWTH AND DISTRIBUTION OF POPULATION

General Features: Distribution of Population: Growth of Population: Immigration, Emigration and Colonization: Rural Settlement: Towns and Cities: The European Population: The Chinese Population: The Arab Population: Bibliographical Note

GENERAL FEATURES

In 1930, the date of the last census, the Netherlands Indies had a population of 60,727,233 or over seven times that of the mother country and one-quarter larger than that of Great Britain. On the basis of the total area of 735,268 sq. miles the mean density is 83 per sq. mile, but the distribution and density of population is so uneven as to make this figure of little significance. Two-thirds of the whole population lives in Java and Madoera and here there is a mean density of 817 inhabitants per sq. mile. On the other hand the corresponding figure in Sumatra is 44, in Borneo 12, in Celebes 56 and in Dutch New Guinea under 5 per sq. mile.

The population is composed of three main groups: Natives, Europeans and Foreign Orientals. The relative numbers of these groups in each of the main political divisions are shown in the table below.

	Natives	Europeans	Foreign Orientals		Total
			Chinese	Others	
Java & Madoera	40,891,093	192,571	582,431	52,269	41,718,364
Sumatra	7,745,227	28,496	448,552	32,568	8,254,843
Borneo	2,017,072	5,639	134,287	11,663	2,168,661
Celebes	4,173,603	7,683	41,402	9,218	4,231,906
Lesser Soenda Is.	3,434,944	1,528	17,816	5,771	3,460,059
Moluccas	563,483	4,296	7,454	3,896	579,129
New Guinea	312,645	204	1,272	150	314,271
	59,138,067	240,417	1,233,214	115,535	60,727,233

Source: *Indisch Verslag*, 1938, vol. II, pp. 12-15 (Batavia, 1938)

The native groups, which form by far the highest proportion of the total population, include a vast number of peoples, such as the

Javanese, Atjeher, Batak, Boeginese and Papuan, varying greatly in physical character and in cultural development (see pp. 1-31). The large Chinese population is concentrated chiefly in the towns and in the mining and plantation districts of Java and Sumatra. Foreign Orientals, other than Chinese, are relatively unimportant in Java, though in most of the other islands they far outnumber the European population. In the older centres, such as Amboina and Makassar, they are fewer in number than the Europeans, mostly Eurasians, and all along the west coast of Sumatra, from Atjeh to the Lampoeng Residency, Europeans predominate; but elsewhere Foreign Orientals take the lead even in busy centres of European enterprise. The name 'European' refers to all those with the legal status of Europeans; 7,195 Japanese, 282 Filipinos, 130 Turks and 8,948 natives were amongst those enumerated as 'Europeans' in 1930.

As in other regions of south-east Asia most of the population lives in rural areas. The proportion of urban dwellers is about 5%. Only six cities in Java and Madoera—Batavia, Soerabaja, Semarang, Bandoeng, Soerakarta and Jogjakarta—have populations of over 100,000; in the Outer Provinces Palembang is the only city of this size.

Occupation Groups

In 1930 the numbers gainfully employed amounted to 20.9 millions out of a total population of 60.7 millions. The chief occupations of the different communities are given in the following table.

Numbers employed in Occupational Groups, 1930 (in thousands)

Occupation	Natives		Europeans		Chinese		Other Orientals		Total No.
	No.	%	No.	%	No.	%	No.	%	
Production of Raw Materials	14,193.2	70.6	18.8	22.0	144.9	30.8	7.0	19.4	14,363.9
Industry	2,105.1	10.3	4.7	5.5	93.9	20.0	5.0	14.0	2,208.7
Transport	290.7	1.3	10.9	12.9	12.7	2.7	1.7	4.7	316.0
Commerce	1,090.9	5.3	11.4	13.2	171.9	36.6	19.0	52.8	1,293.2
Liberal Professions	150.2	.7	11.3	13.2	7.2	1.5	.8	2.3	170.2
Public Administration	491.9	2.3	20.7	24.3	3.0	.7	.5	1.4	516.1
Others	1,957.6	9.5	7.4	8.8	36.1	7.7	2.0	5.4	2,003.1
Total	20,279.6	100.0	85.3	100.0	469.9	100.0	36.1	100.0	20,871.2

Source: *Indisch Verslag*, 1938, vol. II, p. 64 (Batavia, 1938).

Over 60% of the gainfully employed population is occupied in cultivating the soil and in mining operations. Industry, with rather more than 10%, comes next to the production of raw materials in the list of occupations; the remaining occupation groups employ relatively small numbers of workers.

The basic contrast between native and non-native communities is also brought out in the table of occupation groups. Among natives 70% are engaged in the production of raw materials and only 30% in other occupations, whereas in the Chinese community these proportions are exactly reversed, and in the other communities the proportion engaged in the production of raw materials is still lower. Again, commerce occupies over a third of the Chinese and more than half of the Foreign Orientals, while practically one-quarter of the Europeans are engaged in public administration. Closer examination of some of the heads points the contrast more effectively. The native share in the production of raw materials is almost restricted to native agriculture, while plantation agriculture occupies two-thirds of the Europeans. The Chinese are almost equally divided between native and plantation agriculture, with as many engaged in mineral production, and many of them are horticulturalists. In commerce, Europeans have practically a monopoly of the wholesale business; among the miscellaneous petty traders there are nearly as many Chinese as natives, although the latter are fifty times as numerous. The Chinese and other Foreign Orientals monopolize the clothing trade.

DISTRIBUTION OF POPULATION

Contrast is the keynote to the distribution of population in the Netherlands Indies. More than 60% of the population is concentrated in Java and Madoera, the remainder being scattered very widely over a considerable number of large and small islands. Java has a mean density of over 500 persons per sq. mile, whereas elsewhere only a few small areas, such as the islands of Bali and Lombok, the district of Padang in Sumatra and the Makassar region in Celebes, show a density of as much as 350 per sq. mile. Moreover, in the Outer Provinces there are vast areas, especially in Borneo and New Guinea, either completely uninhabited or with less than one person per sq. mile (Fig. 11).

The reasons for this striking population distribution are to be found in the variable relief and soil characteristics, as well as in the

differences in historical and economic development of the islands. The great concentration of population in Java is partly related to the distribution of recent volcanic soils, the fertility of which has allowed an intensive land utilization, and partly to the existence of favourable conditions for irrigated rice cultivation. Further, the regular incidence

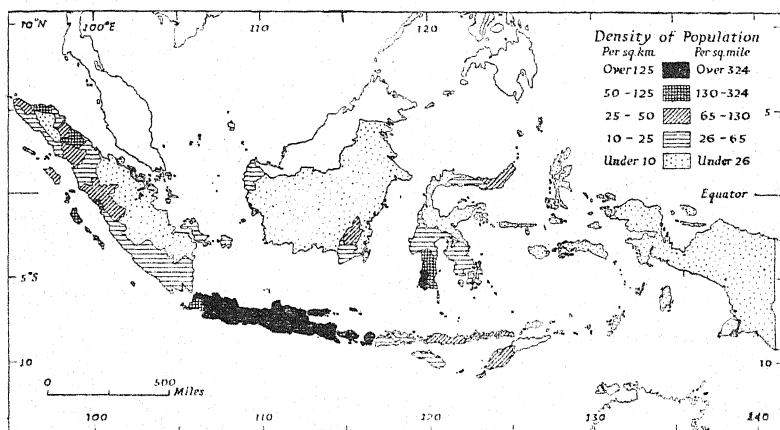


Fig. 11. Distribution of Population in the Netherlands Indies

Source: *Volkstelling, 1930 (Voorloopige Uithkomsten) Buitengewesten* (Batavia, 1931).

of the monsoons in this island ensures the growth of subsistence crops, so vital a factor for a population largely if not entirely dependent on the soil for its livelihood. In respect of these physical conditions, Java is favoured above all the other islands, excepting perhaps the two small islands of Bali and Lombok. Physical factors alone, however, cannot account for the present-day distribution of population. Java has benefited far more than the rest of the East Indies from the many economic developments, such as the improvement of irrigation methods, the establishment of a successful plantation agriculture, the growth of modern manufacturing industries and the construction of a network of roads and railways, introduced by the government since the middle of last century. In addition to these economic advantages, Java has also enjoyed a longer period of political security and of improvements in social life than the other islands. To such factors, taken in conjunction with the physical conditions, may be attributed the high density of population in Java and the relatively low density in the Outer Provinces.

Distribution of Population in Java and Madoera

Java, with the adjacent island of Madoera, is one of the most densely peopled countries of the world with a population in 1930 of 41·7 millions and a mean density of 81·7 per sq. mile. This density is greater than that of Belgium, the most densely populated European country, where there are 712 per sq. mile. It is also equal to the most thickly peopled regions of India, China and Japan. Fig. 12 shows the distribution of population according to the census of 1930 on the basis of the 431 administrative districts into which the island is divided. From this it is seen that notable deviations from the mean density occur ; thus, a density of well under 700 per sq. mile is found in the mountainous country of southern Bantam, whilst figures as high as 3,000 per sq. mile are met with in parts of the northern coastal plain and in the native states of Soerakarta and Jogjakarta.

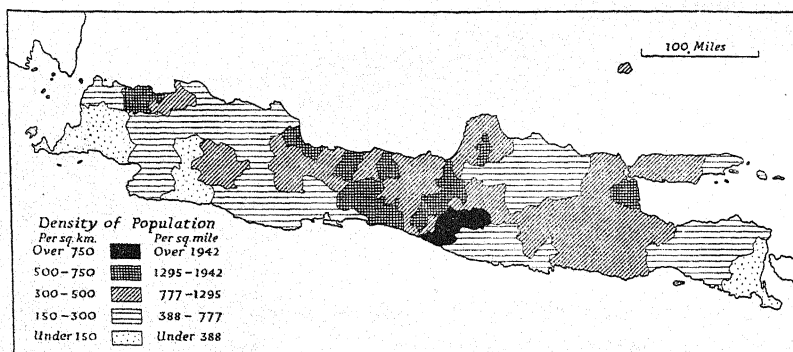


Fig. 12. Distribution of population in Java

Source: Folding map at end of *Volkstelling, 1930 (Voorloopige Uitkomsten), Java en Madoera* (Batavia, 1931).

The population of the island is predominantly rural and there is a marked correlation on the one hand between the density of the rural population and the percentage of land under cultivation in a particular district; and on the other, between this density and the area of cultivated land under rice (*sawah*). In almost all the administrative districts where the population is under 350 per sq. mile the land under cultivation is less than 30% and the *sawah* less than 9% of the total area. On the other hand, where the density is 3,000 per sq. mile or over, the cultivated land is more than 50% of the total area and the *sawah* more than 40%. Owing to differences in soil types over small areas, exceptions are found to this general statement, high figures

appearing among very low ones and similarly low ones amongst high ones.

In 1930 the urban population of Java and Madoera numbered less than three and a half million or only about 8% of the total population. Nearly two-thirds of this number lived in the six towns with over 100,000 inhabitants, namely Batavia, Soerabaja, Semarang, Bandoeng, Soerakarta and Jogjakarta in order of size.

Western Java

The western part of Java between Soenda strait and the meridian of Cheribon has rather under one-quarter of the total population. Some of the highest and some of the lowest rural densities are found here, while on the north coast of this region is Batavia, the capital and largest city in the island. Other large towns are Buitenzorg, Bandoeng, and Cheribon.

In the northern coastal plain of western Java, extending from Serang eastwards to the limits of the region, the population lies along or near the large rivers and principal highways and also in a strip of varying width at the edge of the mountains above the level of the river alluvium. Batavia (533,015 with its suburb Meester Cornelis) is situated at the mouth of the Tjiliwoeng, one of the many rivers entering the Java Sea. It has large manufactures and is an important centre of road and rail communications. In the low-lying districts adjacent to the sea west of Batavia is a fairly dense rural population with extensive areas under rice. But east of the capital, as far as the Tjimanoeck valley, there is a relatively thin population close to the coast, owing to the presence of marshlands, though the density remains high in the more elevated parts some distance from the sea. Further east, near the town and port of Cheribon (54,079) are found some of the highest rural densities in the whole of Java. Thus, in the district of Ploembon there is a density of 4,000 per sq. mile. The high proportion of land suitable for irrigated rice cultivation has largely contributed towards the concentration of population in this district, but other factors need to be taken into consideration. Sugar-cane has been grown here since the first half the nineteenth century, while in recent years the cultivation of groundnuts as an export crop has become important. In addition, many of the inhabitants of the Ploembon district derive their means of livelihood from industry, notably from the manufacture of textiles and tobacco.

The discontinuous belt of volcanic mountains south of the northern coastal plain is characterized by great contrasts in population density.

The mountainous region of western Bantam, which is separated from the main highland belt by low plains, is in general thinly peopled. The district of Menes has a density of 500 per sq. mile and that of Tjibahoeng, only 75 per sq. mile—the lowest figure of any district in

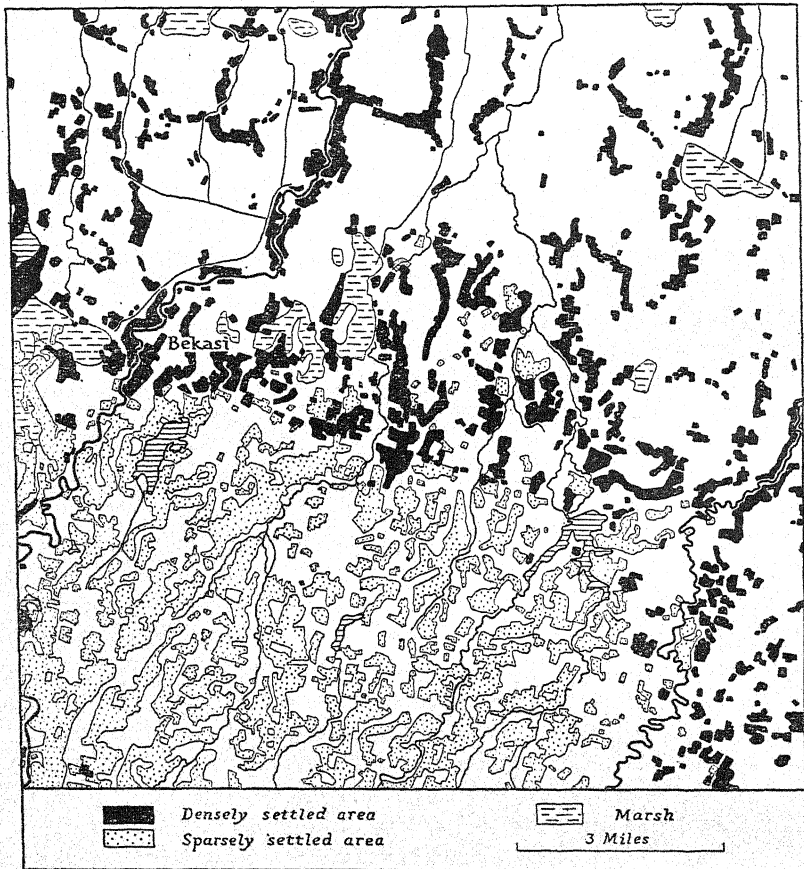


Fig. 13. Settlements in the coastal plain of Java east of Batavia

The northern coastal plain of western Java consists of two roughly parallel belts, an older one, sometimes referred to as 'Quaternary terraces', at higher elevation, on the south nearest the mountains, and a more recent one, little above sea-level, nearest the coast. In this figure the area of small and scattered settlements lie in the former belt, the large and more concentrated settlements being confined to the latter belt. Rice fields cover a much smaller part of the surface of the 'Quaternary Terrace' than of the lower belt nearer the coast. The small town of Bekasi lies on the dividing line between the two parts of the plain.

Source: *Java and Madura*, 1 : 50,000, sheet No. 37/xxxvii-D, G.S.G.S. 4202.

Java. The thinness of the population is due primarily to the poverty of the soil which is here derived from volcanic ejectamenta of high acid content, that is, containing much silicic acid and little lime and iron. Moreover, these districts have a heavy annual rainfall which leaches the soil thoroughly, making it less rich in plant nutrients and so less able to support a dense population. The volcanic region between Lebak and Goenoeng Salak is also thinly peopled, but from here eastwards to G. Tjareme the settlements are densely grouped around the slopes of the volcanoes and in a number of old lake basins. Soil conditions have played an important part in this distribution pattern.

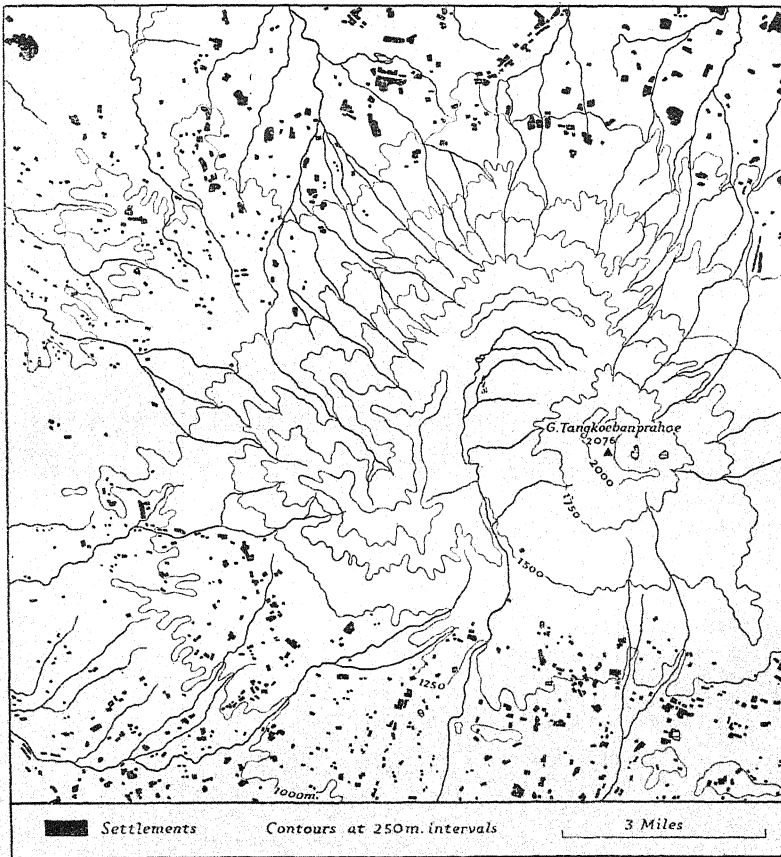


Fig. 14. Settlements on the slopes of G. Tangkoebanprahoe

Source: *Java and Madura*, 1 : 50,000, sheet No. 39/xxxix-A, G.S.G.S. 4202.

The volcanic ash soils are basic in character and contain much lime, iron and potash; their fertility has attracted a large population. In general terms, the younger the soil the higher the density. The northern slopes of G. Tangkoebanprahoe have rather senile soils and support a population of less than 750 per sq. mile, while the soils of the southward facing slopes are relatively young and the density rises to over 1,500 per sq. mile (Fig. 14). Thus, the district of Lembang, at an elevation of over 4,000 ft. on this mountain, has 1,700 per sq. mile, and that of Tjimahi, 1,500 ft. lower, a density of 2,200 per sq. mile. Similar high densities, ranging from 1,000 to 2,000 per sq. mile, occur on the slopes of G. Pangrango and G. Tjareme, to the

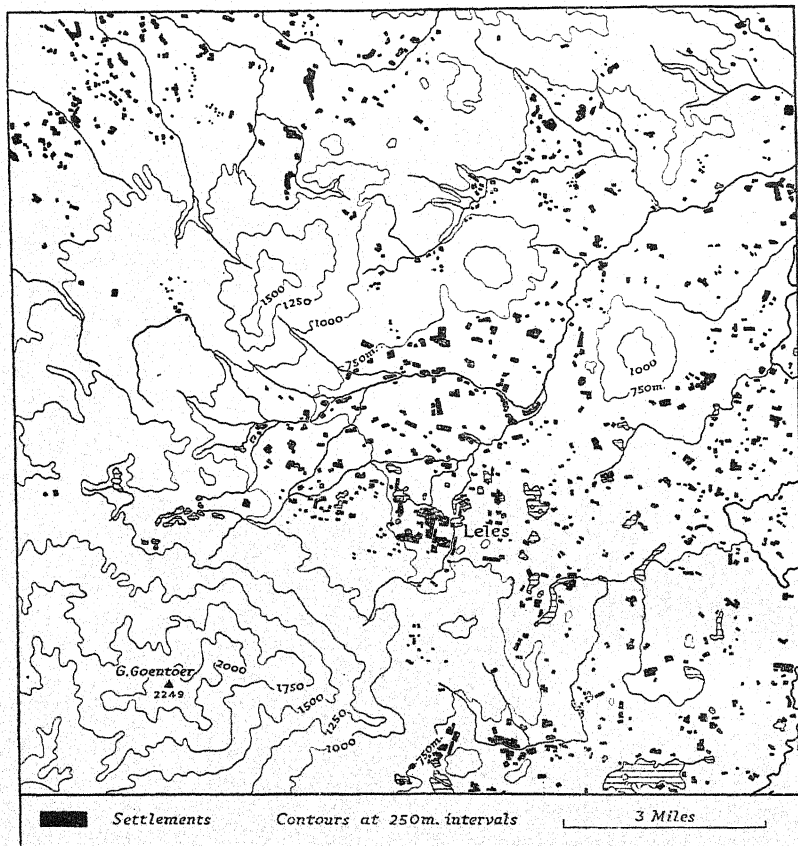


Fig. 15. Settlements in the upland basin of Garoet

The small town of Leles lies about ten miles north of Garoet.

Source: *Java and Madura*, 1 : 50,000, Sheet No. 40/XL-A, G.S.G.S. 4202.

east and west respectively of G. Tangkoebanprahoe. The fertile old lake basins of Bandoeng and Garoet, and the gaps cut by the rivers between the volcanoes, are also well populated. The development of roads and railways has been a not unimportant factor affecting the settlement of these areas. Buitenzorg (65,431), commanding the narrow gap between G. Salak and G. Pangrango, and Bandoeng (166,815), in the upland plain of the same name, are the largest towns in western Java after Batavia.

The mountainous country in the southern part of western Java is formed of Tertiary sandstones, marls and limestones which have, in the main, proved repellent to human settlement. The heavy annual rainfall of this region, moreover, increases the poverty of the soil. As a result of these circumstances no part has a density of over 750 per sq. mile.

Central Java

This region includes the province of Midden-Java, the native states of Jogjakarta and Soerakarta and the western part of the province of Oost-Java, as far east as Soerabaja. Over half of the population of the island dwells here and in parts there are very high densities. Four towns, Soerabaja, Semarang, Soerakarta and Jogjakarta, have over 100,000 inhabitants, while a number of others have populations of over 50,000.

A belt of dense population extends along the northern coastal plain with special concentrations in the residencies of Tegal, Pemalang, Pekalongan and Semarang. The district of Adiwerno near Tegal is the most densely peopled rural district in Java; it has a density of 6,200 per sq. mile. The low-lying plains around Pekalongan also have population densities of over 4,000 per sq. mile. The same factors that have led to the growth of a large population in the Cheribon region of western Java operate here. Irrigated rice cultivation is practised on an extensive scale and sugar-cane growing is also carried on; as in the former region, a great many persons are engaged in native industries, particularly the manufacture of textiles. The town and port of Semarang (217,796) is the capital and chief market centre of the province of Midden-Java. North-east of the city the landscape is dominated by the almost circular volcanic mass of G. Moerjo. A girdle of settlement fringes its lower slopes and certain parts have very high densities; there are 3,500 per sq. mile in the Koedoes district. The coastal plain between this mountain and Madoera strait is less densely peopled than the plain further west; thus, the district of Toeban has a

density of 1,200 per sq. mile. In the neighbourhood of Soerabaja the population density is frequently more than twice this figure. Soerabaja (341,675), which lies at the most northerly mouth of the Kali Brantas, is the first port and the second largest city of Java. It is also an important manufacturing centre.

In the interior of central Java the chequered pattern of population density is conditioned by the varied nature of the land-forms and

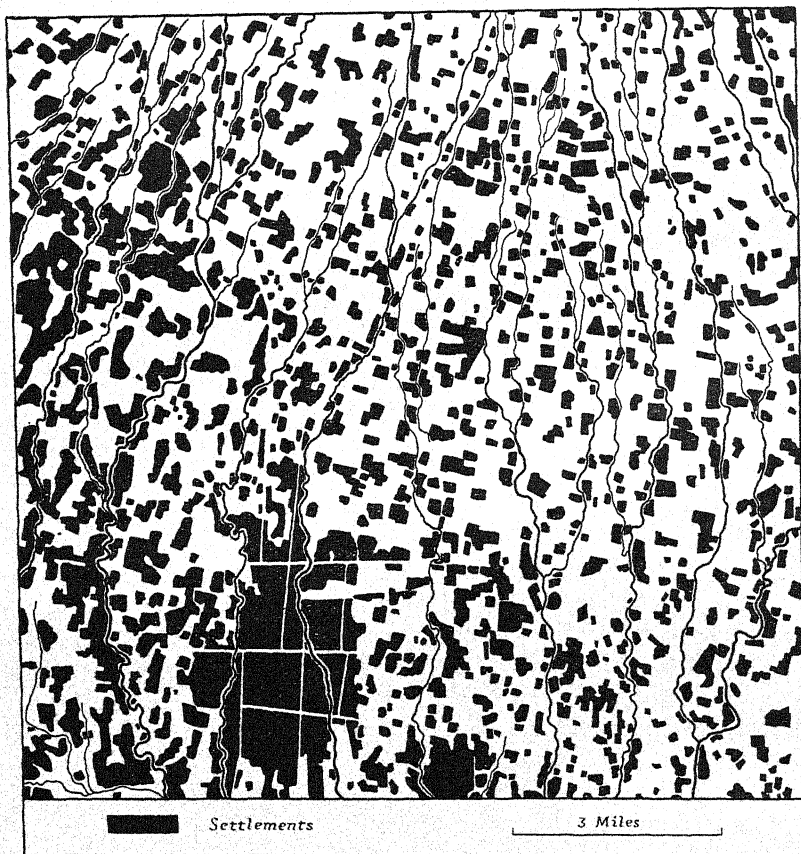


Fig. 16. Settlements in the plains near Jogjakarta

The highest density of population in the whole of Java is found in this region, where the fertile volcanic soils derived from the eruptions of G. Merapi provide excellent conditions for an intensive agricultural development. The town of Jogjakarta, with a population of 136,649 in 1930, is shown near the bottom margin of the map.

Source: *Java and Madura*, 1 : 50,000 sheet No. 47/XLII-B, G.S.G.S. 4202.

soils. The volcanic mountain mass of G. Slamet (11,480 ft.) in the extreme west of the region is thickly settled up to a height of about 3,000 ft., its fertile ash soils providing excellent conditions for the growth of subsistence crops. The district of Keboemen to the south and that of Boemijoe to the west of this mountain have densities of 3,000 and 1,700 per sq. mile respectively. South of G. Slamet is the Banjoemas or Kali Serajoe basin in which the density averages about 2,700 per sq. mile, but between this upland basin and that of Magelang some 50 miles to the east is the relatively sparsely peopled upland region of the Dijëng plateau, and the two volcanoes, G. Soendoro and G. Soembing. The sparsity of settlement may be attributed to the high annual rainfall, which is greater here than in most other districts of Java, as a consequence of which the soils have suffered severe leaching and so cannot support a large population. As already noted, similar conditions obtain in the mountains of western Bantam.

The prominent volcano, G. Merapi (9,547 ft.) has had an important influence upon the distribution of population in the Magelang basin and in the native states of Jogjakarta and Soerakarta. Few parts of Java are more densely peopled or more intensively cultivated (Fig. 16). Despite the frequency of eruptions by this volcano (see vol. 1, p. 30 of this Handbook), causing destruction to life and property, a ring of crowded villages and farms spreads round its slopes; thus, the district of Moentilan to the west of Merapi has a population density of 2,500 per sq. mile, that of Melati, to the south, 3,300 per sq. mile and that of Kartosoero, to the east, 3,350 per sq. mile. The highest of the rural densities around Merapi is in the Klaten district south-east of the mountain where there are 3,800 per sq. mile, this district being the most important centre of tobacco cultivation in the native states. The towns of Jogjakarta (136,649), on one of the streams flowing southwards from Merapi, and Soerakarta (165,484), on the left bank of the upper Kali Solo, are the capitals of the native states which bear their name.

East of the north-south line of volcanoes marked by G. Oengaran, G. Telomojo, G. Merbaboe and G. Merapi, the interior of central Java is made up of two parallel ranges of Tertiary mountains, flanked by longitudinal depressions, while there are also a number of large volcanoes separated by transverse valleys. The Tertiary ranges are covered with teak forests and thinly peopled; the northerly one lies between the coastal plain and the Kali Loesi—lower Kali Solo depression, the southerly one between this depression and that followed by the upper Kali Solo and lower Kali Brantas (Fig. 17).

These depressions are well populated as are the transverse valleys in which lie the towns of Madioen (41,872), Kediri (48,567) and Malang (86,646). The slopes of the volcanic masses in this region are less densely peopled than those of G. Merapi and G. Slamet further west. Some of the largest coffee and rubber plantations in Java are found on the sides of G. Keloed and G. Boetak.

The southern coastal region of central Java is densely peopled between the mouth of the Kali Serajoe and that of the Kali Progo, but

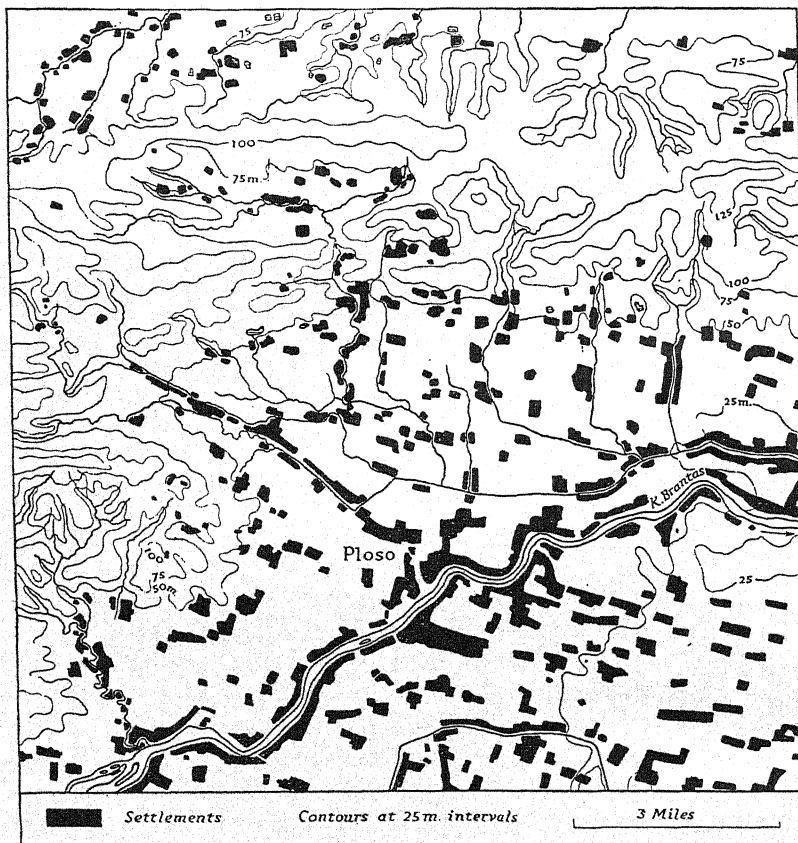


Fig. 17. Settlements in the valley of the Kali Brantas

The Kali Brantas here flows south of a low range of Tertiary hills, which are forested and thinly peopled. There is a fringe of settlements along the foot of these hills. The broad and low river valley is densely peopled. Ploso lies about fifteen miles west of Modjokerto.

Source: *Java and Madura*, Sheet No. 53/XLI-A, G.S.G.S. 4202.

further east the population is thinly scattered. In the former section a density of 1,900 per sq. mile is reached in many districts of the coastal plain (Fig. 18). The villages are crowded together at the foot of the sand dunes which fringe the shoreline and along the base of the hills

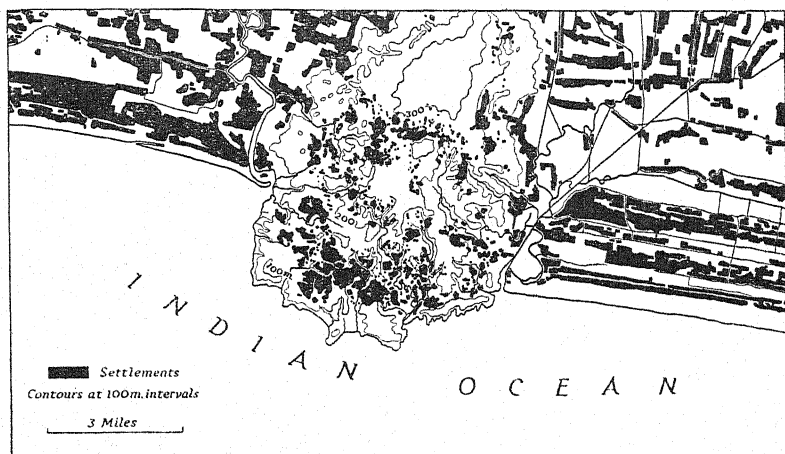


Fig. 18. Settlements in the southern coastal plain of central Java

To the west and east of the central hills the settlements are strung out in almost parallel east-west lines, with rice fields in between, and separated from the sea by high sand dunes. In the central forested upland region, of which G. Doewoer (1,562 ft.) is the highest summit, the settlements are more scattered.

Source: *Java and Madura*, 1 : 50,000, sheet Nos. 44/XLII-B, 45/XLII-A, G.S.G.S. 4202.

at the inner edge of the plain. Irrigated rice cultivation is widely carried on. East of the Kali Progo valley the coastline and hinterland is rugged and inhospitable; the proportion of land under cultivation is small and the mean density of population is one of the lowest in the country.

Eastern Java

The narrow eastern part of Java from the meridian of Soerabaja to Bali strait has on the whole a relatively sparse population compared with the central and western parts of the island, though certain favoured areas record high densities. Probolinggo (37,009) and Pasoeroean (36,973) are the only large towns.

The most densely peopled area in eastern Java is that section of the northern coastal plain in the districts of Probolinggo (2,700 per sq. mile) and Pasoeroean (2,500 per sq. mile). Although the annual rainfall

is low, the many streams flowing into Madoera strait from the Tengger-gebergte provide ample water for irrigation. Rice and sugar are grown on a large scale. Where the streams reaching the plains are small and few in number, as in the Soemberwaroe district at the north-easternmost tip of the island, the soil cannot support a large population and in this particular district there are as few as 300 persons per sq. mile.

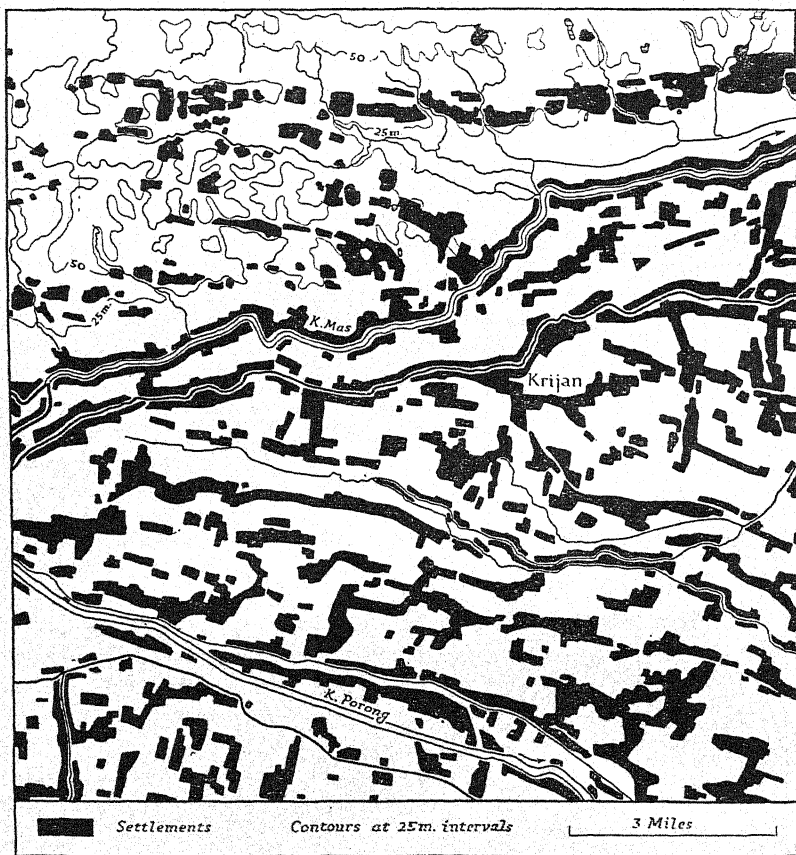


Fig. 19. Settlements near the mouth of the Kali Brantas

The K. Mas and K. Porong are the two main arms of the K. Brantas, the former entering Madoera strait at Soerabaja, the latter a short distance north-west of Pasoeroean. The settlements lie for the most part along the rivers and subsidiary watercourses. North of the K. Mas is a belt of settlements at the base of low hills adjoining the plain.

Source: *Java and Madura*, 1 : 50,000, sheet 54/XLI-A, G.S.G.S. 4202.

Three volcanic masses, the Tengger-gebergte, the Ijang-gebergte and the Idjen-gebergte, dominate this part of the island. As the proportion of their surface over 5,000 ft. is considerably higher than in the volcanoes of central and west Java they make far larger gaps in the population pattern. Between them are two broad saddles of volcanic debris, the more westerly of which has rather infertile, old volcanic soil and is thinly peopled, while the other, south of Bondowoso, is largely composed of recent volcanic ash producing a fertile soil which supports a relatively dense population.

The plains of the south coast are nowhere so densely peopled as those of the north. A number of districts with upwards of 1,500 per sq. mile are found in the broad lowlands near Djember, south of the Ijang-gebergte. This density does not reach to the coast, for large areas near the sea are low and swampy. A highly dissected group of sandstone mountains, with only a few scattered habitations, rises sharply to the east of the Djember plains and separates them from another lowland strip which lies between Gradjagan bay and Banjoewangi. This lowland has a mean density of under 750 per sq. mile; in the north-west, the gently inclined slopes of the Idjen-gebergte are covered with rubber and tea plantations. The extreme south-east of Java is formed by the Blambangan peninsula, a low limestone plateau, infertile and almost uninhabited.

Madoera

The island of Madoera has a population of 1,962,462 and a mean density of 1,375 per sq. mile. The central limestone range, broken in the west by a median depression, is a rather barren region with a relatively low density of population. On the other hand the encircling plains, particularly those in the west and south, are intensively cultivated and thickly settled. Rice, maize and tobacco are widely grown, and cattle rearing is important; many of the inhabitants also derive their subsistence from salt pans and fish ponds (see vol. 1, p. 195 of this Handbook). The chief towns are Bangkalan, Sampang, Pamekasan and Soemenep.

Distribution of Population in Sumatra

In 1930, Sumatra and its adjacent islands had a population of 8,254,843 and a mean density of 44 per sq. mile. Although this island is over three times the size of Java it has about one-fifth the number of inhabitants. The fertile volcanic ash soils, which have made possible

the exceptionally high densities in Java, are much less common in Sumatra, occurring only in the Lampoeng district of the south, in the mountains on the border of the Palembang and Benkoelen residencies, in the Padang Highlands and in the Batak country. Moreover, in many of these areas a higher proportion of acid than basic effusiva is ejected, so that the population figures correspond more nearly to those of Java than to those for the rest of Sumatra. About 5% of the total population lives in towns, of which there are sixteen with populations of over 10,000. Palembang, Medan and Padang are the largest centres.

The great plains of eastern Sumatra, which are less than 35 miles broad in the extreme north and widen to over 125 miles in the centre and south, have some of the lowest densities in the whole island, though certain parts are fairly well peopled. Dense, tropical jungle, and marshlands overgrown with mangroves, cover extensive areas, particularly in the region adjoining Bangka strait and the southern section of Malacca strait. These areas are almost uninhabited. The main settlements in the plain are found on or near the banks of rivers at a level above the marshes. Thus, the small town of Menggala (14,174), in the Lampoeng district, lies in the centre of a fairly well settled region; even here the density of population is only about 60 per sq. mile. Further north is the valley of the large Air Moesi where the density in places exceeds 200 per sq. mile. The suitability of much of the land for irrigated rice cultivation, the recent establishment of rubber and coffee plantations and the presence of rich oilfields are among the factors which have drawn settlement to this region. Palembang (108,145), the largest town and chief commercial centre in the island, is situated on the Moesi where a low range of hills come close to the banks of the river. The neighbouring settlement of Pladjoe is the largest oil refining centre in the Netherlands Indies. Djambi (22,071), capital of the residency of that name, lies some distance north of Palembang on the banks of the Batang Hari. Between this town and the mouth of the Soengai Asahan, about 375 miles to the north, is one of the most thinly peopled regions in the whole island. In many places marshland extends to the foot of the western mountains. Even along the rivers the settlements are very scattered; in the valley of the S. Kampar-kiri there are 10 per sq. mile and in that of the S. Siak 3 per sq. mile.

North of the S. Asahan the eastern plains of Sumatra narrow considerably and the area under marsh is largely reduced to a strip along the coast. This section of the plain, known as the *cultuurgebied*, is one of the most densely populated parts of Sumatra, with densities

of over 200 per sq. mile. Tobacco, rubber, coffee, tea and the oil palm are widely cultivated, while mineral oil production is also important. The construction of roads and railways has helped to open up the region. Medan (76,584), on the S. Deli, is the second largest town in the island and the centre of the chief tobacco cultivating district. Tandjoengbalai (6,823), Tebingtinggi (14,026) and Bindjai (9,176) are other towns.

The mountains of western Sumatra, which run the entire length of the island from north-west to south-east, and which fall steeply to the narrow coastal plain bordering the Indian Ocean, are varied in relief and equally varied in their density of population. South of Padang few parts have more than 50 per sq. mile and Benkoelen (13,418) is the only important town; even in the vicinity of the active volcano of G. Kerintji the density is only 70 per sq. mile. With the opening up of this region during recent years by means of trunk roads, the population is likely to increase greatly. That this will be the case may be deduced from the fact that farther north in the Padang Highlands, under similar physical conditions, there is a greater concentration of population than in any other part of Sumatra. The fertile ash soils derived from the ejectamenta of G. Marapi and other volcanoes account for the concentration of settlement in this region. The district in which Fort de Kock (14,657) is situated has a population density of 900 per sq. mile, or, not counting the town, 850—the highest figure in the whole of Sumatra. In the Fort van der Capellen district, south-east of G. Marapi, the density is 650 per sq. mile, and in many other areas densities of over 400 per sq. mile are recorded. Along the intermontane depression south of this mountain are the towns of Padangpandjang (9,609) and Solok (6,214). Tobacco, coffee, coconuts and various forest products are grown in the Padang Highlands; coal is mined near Sawahloento. The densely settled region also extends to the coast where the rural districts of Pariaman and Padang have 500 and 530 per sq. mile respectively. Padang (52,054) is the chief town in western Sumatra and the third largest in the island; its port is at Emmahaven, 5 miles away, to which it is connected by road and railway.

The western mountain belt again becomes thinly peopled for some distance north of the Padang Highlands; most of the scattered settlements lie in the intermontane valley which continues as a marked feature of the landscape as far as the Batak plateau. This plateau, which is formed of comparatively recent volcanic tuff, is fairly well settled, a number of districts having over 200 per sq. mile. In the

centre of the region is the large lake Toba and the hills bounding this stretch of water on the east adjoin the economically important area between Medan and the S. Asahan on the east coast. Good roads connect the settlements on the shores of lake Toba with those in the neighbourhood of Medan. Roads also link the plateau with Sibolga (10,765), at the head of Tapanoei bay, on the west coast. In the mountains of Atjeh Residency, between the Batak plateau and the northernmost tip of Sumatra, the proportion of land suitable for cultivation is low and the population is very scanty. But on the narrow strip of coastal plain in the north much land is devoted to irrigated rice and to the cultivation of rubber and pepper. Here, many districts have more than 100 persons per sq. mile and one town, Koetaradja, has over 10,000 inhabitants. Marshes restrict the area of settlement in the western coastal plain, where Meulaboh (2,575) is the largest town.

A number of islands varying greatly in population density lie off the western and eastern coasts of Sumatra. Nias has the largest population of the western chain of islands, with 199,818 inhabitants in 1930 and a mean density of 143 per sq. mile. The other islands to the north and south, Simeuloeë, Batoe, Siberoet, Nassau and Enggano, have under 2 per sq. mile. Off the eastern coast of Sumatra are the islands of Bangka and Billiton and the archipelagoes of Riouw and Lingga, all of which are well populated. Bangka (205,363) and Billiton (73,429) owe their relatively large population to the important tin mining which has developed here. The three chief towns on Bangka, Tandjoengpandan (15,708), Pangkalpinang (11,970) and Muntok (6,929) are engaged in this industry. Tin mining has also attracted population to the Lingga archipelago, but in this as in the Riouw archipelago further north, and unlike Bangka and Billiton, many of the inhabitants are occupied in agriculture, particularly in the cultivation of gambir, a product mainly used for tanning. The port of Tandjoengpinang (5,789) is the capital of the Residency of Riouw en Onderhoorigheden; it lies on the eastern shores of Riouw strait, which forms the main channel of approach to Singapore from the south.

Distribution of Population in Borneo

At the time of the last census (1930) Dutch Borneo had a population of 2,168,661 and a mean density of 12 per sq. mile. Only the valleys of the west and south-east are at all well peopled and the mountainous

regions of the interior are for the most part uninhabited. Poor soil and dense impenetrable forest make much of the country inhospitable to settlement. The urban population forms about 10% of the total. Five towns, Bandjermasin, Pontianak, Balikpapan, Tarakan and Tandjoengseilor have over 10,000 inhabitants.

In the valleys of western Borneo a number of small districts near the coast have between 40 and 80 persons per sq. mile. One of the most favoured regions is the Sambas district in the extreme north-west, where much land is devoted to coconut and rubber plantations and to the cultivation of pepper. Singkawang (7,127), the chief town of this region, lies on the coast south of the mouth of the S. Sambas. Another fairly well cultivated though less densely peopled region is in the middle reaches of the S. Kapoeas, with its centre at Sintang (4,474). At the northernmost mouth of this river is the important town and port of Pontianak (45,196), which exports large quantities of rubber, copra and pepper. The only other town on the west coast is Ketapang (4,385), about 125 miles south of Pontianak.

The extensive marshy lowlands of southern Borneo as far east as the S. Barito, and the forested central regions, are practically uninhabited. The small settlements that do exist are all found along the banks of the rivers. In the section of the southern lowlands between the S. Barito and the north-east-south-west trending Meratoes-gebergte is a well populated region with densities of 200 per sq. mile in some areas. This relatively high density is made possible by the position of the region in the rain shadow of the Meratoes-gebergte, as a result of which the annual rainfall is less and the soil consequently made less infertile by continuous leaching. The fertility of the soil has caused large areas to be put under cultivation; rice and pepper are grown and there are also rubber and coconut plantations. The construction of several good roads has helped towards the opening up of this region. Kandangan (9,774), situated at the junction of the mountains and the plains, is an important market town, while Bandjermasin (65,698), near the mouth of S. Barito, is the chief outlet for the region and the largest town in the whole of Dutch Borneo.

The eastern coastal regions and mountains are everywhere thinly peopled, except for a few small districts near the coast where coal and oil have attracted settlement. Coal is mined on Poelau Laoet and exported from Kotabaroe (3,756) on the northern tip of the island. Further north, Balikpapan (29,843) is the centre of one of the largest oilfields in the Netherlands Indies (see p. 257). Another oilfield, on an

island at the mouth of the S. Sesajap in the extreme north, has given added importance to the town of Tarakan (11,589).

Distribution of Population in Celebes

The population of Celebes, which numbered 4,231,906 in 1930, is unevenly distributed. Large tracts of the mountainous interior are uninhabited and the bulk of the population lives in the south-western and northern peninsulas, where young volcanic soils permit an intensive cultivation. The mean density is 56 per sq. mile. Makassar, Gorontalo, Tondano and Manado are the chief towns.

In the south-western peninsula the volcanic ash soils, derived from the volcano G. Lompobatang, support a large population, the districts of Bonthain, Takalar and Pangkadjene having over 375 persons per sq. mile. Rice, maize, coffee and coconuts are the most important products. Makassar (84,855), on the west coast of the peninsula, is the main outlet for this region and the second largest town in the Outer Provinces (see p. 392). The belt of dense population extends northwards to the low-lying area near Singkang (5,847) and to the base of the peninsula in the Toradja country where volcanic soils again predominate. A network of good roads has contributed to the settlement of this peninsula.

The south-eastern and eastern peninsulas are sparsely peopled. The soils are nowhere so fertile as in the Makassar region and the proportion of cultivated land is low. In the narrow coastal plains, fishing, coconut cultivation and trading offer means of livelihood to a small number of people.

The easternmost end of the northern peninsula is one of the most densely peopled parts of Celebes. This is the Minahasa region which has extremely fertile, volcanic soils which are cultivated wherever relief permits; among the crops grown are rice, coconuts, coffee and spices. The population density averages between 200 and 400 per sq. mile. Manado (27,544), the second largest town in the island, is the chief port for the region and is connected by good roads with all the principal settlements of Minahasa. Another large town on the northern peninsula is Gorontalo (15,603), the main trading centre for the gulf of Tomini.

Distribution of Population in the Lesser Soenda islands

The Lesser Soenda islands, including Bali, Lombok, Soembawa, Soemba, Flores and Timor, had a population of 3,460,059 in 1930.

The following table gives the population figures for the main islands.

	Population	Density per sq. mile
Bali	1,101,393	750
Lombok	701,290	550
Soembawa } Soemba }	497,169	200
Flores	626,684	140
Dutch Timor	533,523	104
	<hr/> 3,460,059	<hr/> 180

Source: *Indisch Verslag*, 1938, vol. II, p. 15 (Batavia, 1938).

The two islands of Bali and Lombok have together over half the population of the Lesser Soenda islands. They owe their high density of population to the fertility of the volcanic ash soils and to the excellent facilities for irrigation. In both islands the most densely populated areas are the southern slopes of the volcanoes; in the Gianjar district of south Bali there are over 1,750 inhabitants per sq. mile—a density comparable to that in the fertile lowlands of Java—and many other districts have between 550 and 1,000 inhabitants per sq. mile. Rice, maize, tobacco, coconuts, coffee and tropical fruits are among the many crops grown. Denpasar (16,639) in the south of Bali, is the largest town of the island. The northern sides of the two islands, which suffer from drought for six months of the year, are far less densely peopled, with densities of about 350 per sq. mile. Singaradja (12,345), on the northern coastal plain of Bali, is the capital of the Residency of Bali and Lombok.

Soembawa, Soemba, Flores and Dutch Timor, the other larger islands of the Lesser Soenda group, are thinly peopled compared with Bali and Lombok. The greatest densities occur where recent volcanic soils permit an intensive agriculture, as in the eastern parts of Soembawa and Flores. The district of Maoemere in Flores has a density of 275 persons per sq. mile. By contrast, the barren soils of the Tertiary limestone areas of Soemba and Timor support under 40 per sq. mile. The largest towns in the group are Koepang (7,171) on Timor, and Raba (6,781) on Soembawa.

Distribution of Population in the Moluccas

The many large and small islands known collectively as the Moluccas have a total population of 579,129, according to the census of 1930. Most of the islands are mountainous and thickly forested and the population lives mainly on or near the coast. The highest densities are found where volcanic soils permit an intensive agriculture. Thus,

Ternate has a mean density of 580 per sq. mile, Tidore 500 per sq. mile, and Banda 275 per sq. mile. Rice, maize, sago, pepper, nutmegs and fruit are among the crops grown on the fertile soils of these islands. Few of the islands have important mineral resources; an oilfield around the shores of Boela bay in eastern Ceram has attracted a fairly large population.

Each of the main island groups of the Moluccas has at least one important trading centre, though Ternate and Amboina are the only large towns. Amboina (17,334), in a sheltered bay on Amboina island, is the chief commercial centre in this part of the Netherlands Indies. Ternate (7,126), on the south-east coast of the island of the same name, is the seat of an ancient sultanate.

Distribution of Population in Dutch New Guinea

Dutch New Guinea is one of the least populated and least known land areas of the world. In 1930 the population was estimated to total 314,271, which gives a mean density of about 2 per sq. mile. The high ranges of the central cordillera and large parts of the lowlands are completely uninhabited. A very low proportion of the land is under cultivation. The four main settlements, Merauke, Fakfak, Manokwari and Hollandia, all lie on the coast. Most of the native villages are found on the banks of rivers.

GROWTH OF POPULATION

In 1815, the population of Java was estimated at about four and a half million so that, even allowing for the probable inaccuracy of this figure, the population of the island has certainly multiplied several times during the past hundred years. The increase in population in the Outer Provinces over the same period is not known, though it is likely to have been less marked than in Java. Statistics showing the rates of growth are only available since 1905, the year of the first census. Other census returns were made in 1920 and 1930.* The following table shows the population in Java and Madoera and in the Outer Provinces at the time of each census.

Population Growth, 1905-30 (thousands)

	Java and Madoera	Outer Provinces	Total
1905	30,368	7,619	37,717
1920	34,978	14,366	49,350
1930	41,718	19,009	60,727

Source: *Indisch Verslag*, 1938, vol. II, pp. 32, 38, 41 (Batavia, 1938).

* Another census was due in 1940, but owing to the war it had to be postponed.

The official estimate of the population for 1940 is 70·5 millions, so that in recent years the population seems to have been growing at the rate of 1·5% per annum. Some of the most densely peopled regions of Java, such as the northern coastal plains from Cheribon to Semarang, and the valley of the lower Kali Brantas near Soerabaja, would seem to be approaching their saturation point for they show a relatively small growth of population (Fig. 20). Increase is most marked in those regions where plantation agriculture has recently been extended, as, for example, in the Preanger Residency south of Bandoeng, in the eastern part of the sultanate of Soerakarta, and in

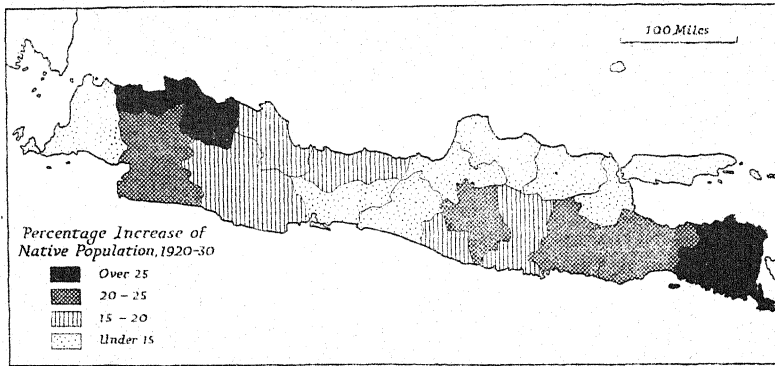


Fig. 20. Increase of the native population in Java and Madoera, 1920-30

Source: *Indisch Verslag*, 1938, vol. II, p. 28 (Batavia, 1938).

the Banjoewangi district of Oost-Java. The great increase of population in the lowlands north of Cheribon may be attributed to the bringing under cultivation of a large part of the delta of the Tjiman-oek. The rapid growth of Batavia in recent years accounts for the high figure in the Batavia Residency.

Natural Increase

In Java the birth-rate is about 40 per thousand and the death-rate on the average 20 per thousand. The natural increase of the population is therefore about 20 per thousand. A higher death-rate is found in the towns than in the rural districts. In the Outer Provinces the birth-rate is not very different from that in Java, but the mortality rate is much higher, as the measure taken in Java for the improvement

of hygiene and the combating of disease have not yet been widely introduced elsewhere.

IMMIGRATION, EMIGRATION AND COLONIZATION

Immigration

Until within quite recent years few difficulties were placed in the way of persons wishing to visit or reside in the Netherlands Indies. Although certain conditions were imposed on intending residents, except government servants and consular officials, they were not ordinarily applied to tourists and others contemplating a merely temporary stay. Persons intending to stay for a long period were required to obtain an admission card, entitling them to remain for two years. This could be prolonged to six years by periodical renewals and those who wished could obtain a licence to reside more or less permanently. Immigrants were required to disembark at certain approved ports including the three chief ports in Java, namely, Tandjoengpriok, Semarang and Soerabaja, and twenty-one ports in the Outer Provinces, of which the chief were Belawan, Palembang, Pontianak and Makassar. Admission might be refused where the party concerned was of bad character, or considered dangerous to public order or safety. Labourers imported under contract were exempt from these conditions, but were subject to other rules framed with the same object of maintaining control over immigration without hindering it by unnecessary restrictions.

Of late years, however, there have been changes in the policy with reference to immigration. Restrictions have been imposed on the importation of contract labour (see p. 290) and on the number of Europeans (including Japanese) admitted. Formerly, the number of Japanese immigrants was so insignificant that separate figures for them were not published in the annual returns. But when the large increase of Japanese trade from 1931 onwards was followed by an influx of Japanese nationals it was thought expedient to enumerate them separately. This practice, introduced for the first time in 1933, showed that among those who received admission cards the number of Japanese exceeded that of all other 'Europeans' together. In addition to these, the number of Japanese visitors in 1934 exceeded 2,000. In view of the suspicions aroused by the number of Japanese and their activities, it was decided to limit the immigration of 'Europeans' to 800 annually and to assign to Japan a definite quota.

The figures for immigration during recent years are tabulated below.

Number of Immigrants, 1933-37

	Nether- landers	Japanese	Other 'Europeans'	Chinese	Other Foreign Orientals	Total
1933	2065	777	559	4594	925	9280
1934	2354	741	517	7542	745	11899
1935	2632	621	510	8054	903	12720
1936	3154	354	457	8046	727	12738
1937	3943	396	549	13333	1061	19282

Source: *Indisch Verslag*, 1938, vol. II, p. 45 (Batavia, 1938).

Emigration and Colonization

During the nineteenth century the abundant labour force was regarded as a main source of the wealth of Java and the export of Javanese labour was discouraged. On the abolition of slavery in Surinam in 1863 coolies were needed for the Dutch plantations there, but Liberals protested against the recruitment of coolies by the State and in 1887 secured the passing of a regulation to prohibit the recruitment of coolies for work abroad without the sanction of the government. Under this regulation a few thousand hands were supplied annually to Malaya, North Borneo, and Sarawak and in smaller numbers to New Caledonia and Cochin-China. About 1900 the development of the Outer Provinces was beginning to attract interest. In these there was a scarcity of labour and in Java a surplus. Measures were, therefore, taken to facilitate the recruitment in Java of labour for the Outer Provinces and also to relieve the surplus population of Java by settling colonies in the Outer Provinces.

The first experiment in colonization was made in 1905 when a few Javanese were settled at Gedongtataän in the Lampoeng Residency of southern Sumatra. This colony gradually took root and in 1909 and again in 1911 colonies on a smaller scale were formed in the Benkoelen Residency on the west coast of the island. But it was difficult to select suitable areas for colonization. The districts that offered the best prospects to colonists were for the most part already under development by capitalists, who wanted whole-time labour wholly dependent upon wages, rather than settlers who would work on the plantations in their spare time if the wages were sufficiently attractive. The task of colonization was difficult and costly and it seemed that, although beneficial to the comparatively small number of immigrants, very little impression could be made by that means on

the swarming population of Java. For these reasons, and also on account of the war of 1914-18, the interest in colonization languished, though further experiments, also on a small scale, were made between 1918 and 1922, mostly in the plantation area of Deli on the east coast of Sumatra. The settlements here, however, were in the nature of a labour reserve for the plantations rather than agricultural colonies. By 1929 there were some 45,000 settlers in the Oostkust Residency and about 30,000 in the Lampoeng and Benkoelen Residencies of Sumatra.

In 1930 and 1931 new colonies were started in Benkoelen for victims of the Merapi eruption, which rendered homeless several thousands of Javanese. By this time useful experience had been gained and, when vast numbers had been thrown out of work by the closing down of sugar factories and other enterprises during the depression of the early thirties, colonization was resumed on a considerable scale and new settlements were established not only in the areas already colonized, but also in the Palembang district and in parts of Borneo and Celebes. The operations were now entrusted to a special Agricultural and Colonization Bank of the civil service which devised a 'germinal system' (*systeem van kernvorming*) of colonization. In districts where much waste was available a few families were settled as the seed of future colonies; the families were subsidized by the State until they became self-supporting. This reduced the cost of colonization per head and enabled the government to undertake it on a much larger scale. Since 1937 there have been interesting experiments in the establishment of colonies, not of agriculturists but of foresters, in some of the waste spaces of the Outer Provinces: when the forests have been brought under control and any necessary clearings made there will be land available for cultivation either by the foresters or by new agricultural immigrants.

In 1937 a Central Commission for Emigration and Colonization was established and funds were provided out for the export duty on native rubber, the special Madoera Welfare Fund and the Dutch Welfare contribution of twenty-five million guilders. In the selection of colonists preference is generally given to young married couples. The government aims at a total emigration to the Outer Provinces of 150,000 a year; it is calculated that this figure will prevent a further increase in the overcrowded population of Java. In 1941 there were 117,000 colonists settled in the Lampoeng Residency, 14,500 in the Palembang Residency and 7,500 in the Benkoelen Residency of Sumatra; in the same year Celebes had

14,500 and Borneo 1,780 colonists. These figures only include emigrants who received State assistance, and they also exclude the labour colonies in the plantation region of north-eastern Sumatra.

European Colonization

During the world economic depression Europeans were in many ways hit more severely than the natives. Those who came from Europe could return home, but most of the Europeans in the Netherlands Indies are of local origin and partly of local blood, and to provide for these a number of colonization projects were devised. The Indo-European Union (*I.E. Verbond*) founded the Giesting-Colonization, the Indian Association for Individual Work-Provision founded colonies in Borneo, and there were other associations to encourage colonization on Poelau Laoet and in New Guinea. It soon appeared, however, that enthusiasm alone was not sufficient equipment for European colonization in the tropics, and in 1937 the government instituted a Colonization Council under the Department of Justice to enquire into the working of the movement and its result. The report of this council was on the whole unfavourable, but it pointed out that European colonization must in general depend on long period crops and that final judgment could not be pronounced in a shorter period than ten years. Very few colonists, however, had the capital to support themselves during the early years, when their land was making little or no return, and with the gradual return to prosperity from 1937 onwards European colonization ceased to be of importance.

RURAL SETTLEMENT

The settlement sites in the rural districts of the Netherlands Indies are as varied as they are interesting. Settlements are found on the banks of rivers, at the foot or on the lower slopes of volcanoes and close to sand-dunes near the coast. These are the most striking and characteristic of the village sites, but there are others, for numbers of villages have grown up along the main roads, or in close proximity to rubber, tea and coffee plantations which have been established by the Dutch in many parts since the beginning of the present century. In the following account of some of the chief settlement sites the examples are taken almost exclusively from Java, as this is the only large island of the Netherlands Indies with a complete series of large-scale maps.

River Bank Settlements

A large proportion of the settlements in Java lie on the banks of the main rivers and tributary streams. This site is favoured because

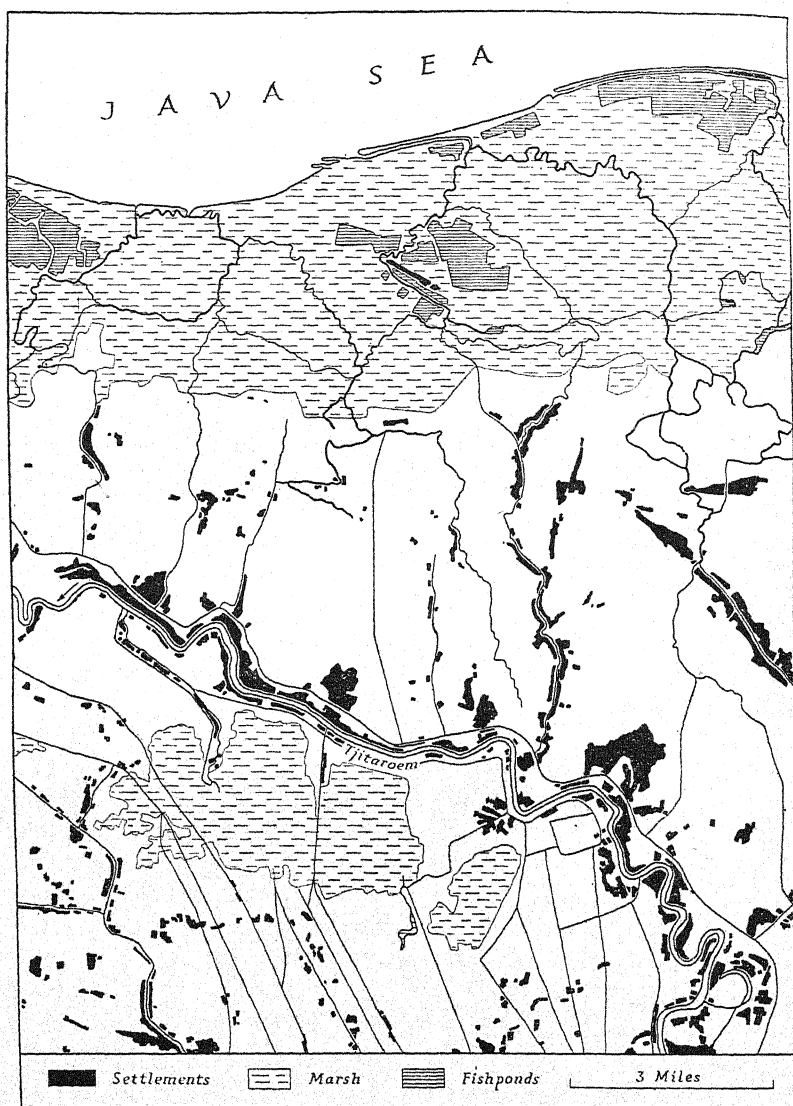


Fig. 21. Settlements near the mouth of the Tjitaroem

Source: *Java and Madura*, 1 : 50,000, sheet Nos. 38/xxvi-C, 38/xxvii-A, G.S.G.S. 4202.

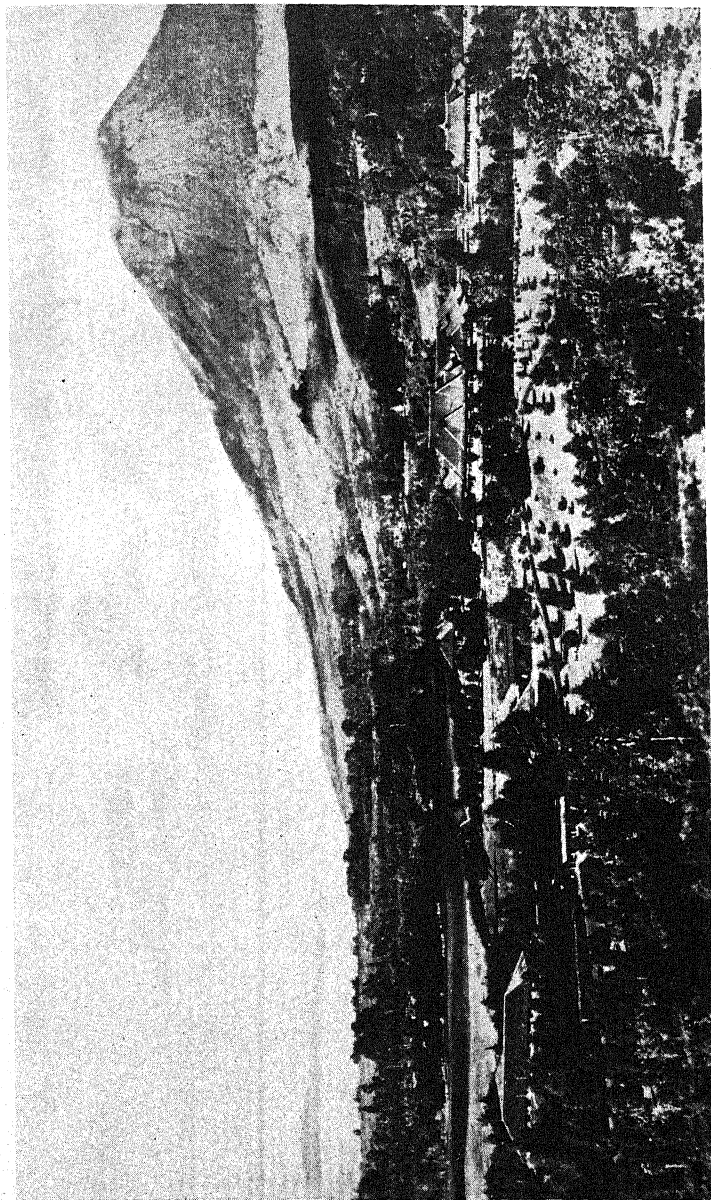


Plate 31. Berastagi, Sumatra

Berastagi is a hill-station, over 5,000 ft. above sea-level, about fifty miles south-south-west of Medan. There are a number of hotels, and many private bungalows owned by Europeans. In the background of the photograph is G. Sibajak (c. 7,000 ft.).



Plate 32. Native houses on the banks of the Soengai Belawan, Sumatra
In the broad low-lying plains of eastern Sumatra most of the settlements lie along river banks.



Plate 33. Native houses on tea plantation near Soemedang, Java
These houses have been specially built for the workers on the plantation.

the rivers at one time were, and to a large extent still are, the most important means of communication in many districts. Such a site also leaves the maximum area of land available for cultivation, a significant fact in an island where most of the inhabitants depend upon the growth of subsistence crops for their livelihood. In the northern plain of western Java an almost continuous line of villages runs along the banks of the Tjitareem, while the banks of the Kali Brantas in the east central part of the island are similarly teeming with people (Fig. 21). The lower courses of some of the rivers that flow into the Java Sea are embanked to prevent flood waters from



Fig. 22. Settlements on the slopes of G. Merapi

The fringe of settlements shown in this figure is typical of many of the volcanoes of Java (cf. Fig. 14).

Source: *Java and Madura*, 1 : 50,000, sheet No. 47/XLI-D, G.S.G.S. 4202.

inundating the surrounding plains; where there are embankments the villages have been built at their foot.

Volcano-fringing Settlements

The lower slopes of volcanoes form one of the most characteristic of the settlement sites in Java. Recent volcanic ash soils are able to support a dense agricultural population and wherever these are present the volcanoes are fringed by a girdle of settlement. This is particularly well seen on the slopes of the volcanoes, Goenoeng Tangkoebanprahoe, G. Slamet, G. Oengaran, and G. Merapi (Figs. 14, 22). The volcanoes of the Fort de Kock region in Sumatra, of the Makassar region in Celebes and of Bali and Lombok are also ringed by villages.

Sand-dune Settlements

In the southern coastal plain of Java from Tjilatjap to the mouth of the Kali Progo many settlements are found on the inner side of the sand-dunes which run in a series of lines parallel with the coast (Fig. 18). The dunes vary in height from 25 to 60 ft., and are from half a mile to one mile in width. The villages are long and narrow and frequently extend continuously for over three miles. The low-lying land between the dunes is devoted to rice cultivation.

Plantation Settlements

A certain number of settlements in the Netherlands Indies owe their location to the recent establishment of modern plantations. In countries such as Java, where the labour force can generally be recruited from villages in the neighbourhood, the special type of plantation settlement is not so common as in the far less densely peopled islands of Sumatra and Borneo. The chief rubber plantation region of Sumatra lies on the north-eastern coastal plain near Medan, and here villages have been specially built close to or in the centre of the plantations. Similar villages are seen in the plantation district north of Bandjermasin in Borneo.

TOWNS AND CITIES

In 1930 the Netherlands Indies had 118 towns with a population exceeding 10,000:

Over 100,000 inhabitants		
50,000-100,000	„	10
20,000- 50,000	„	36
10,000- 20,000	„	65
		<hr/>
		118
		<hr/>

Source: *Indisch Verslag*, 1938, vol. II, pp. 19-21 (Batavia, 1938).

Twenty-nine of these towns have a separate and autonomous municipal government and are classified in the census as 'municipalities'. All the larger towns, with the important exceptions of Soerakarta, Jogjakarta, Koedoes, Pontianak and Balikpapan, are included in this category.

The seven cities of over 100,000 inhabitants are as follows: Batavia, 533,015; Soerabaja, 341,675; Semarang, 217,796; Bandoeng, 166,815; Soerakarta, 165,484; Jogjakarta, 136,649; Palembang, 108,145. Six of the cities are thus in Java and only one in the Outer Provinces. Batavia is the capital of the Netherlands Indies and of

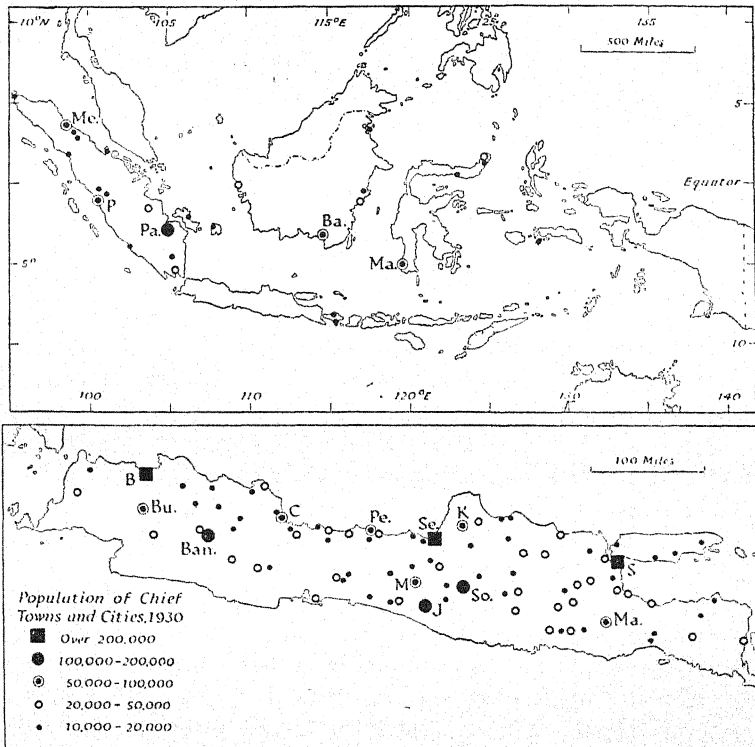


Fig. 23. Distribution of chief towns and cities

B Batavia	K Koedoes	Pa Palembang
Ba Bandjermasin	M Magelang	Pe Pekalongan
Ban Bandoeng	Ma (Java) Malang	S Soerabaja
Bu Buitenzorg	Ma (Celebes) Makassar	Se Semarang
C Cheribon	Me Medan	So Soerakarta
J Jogjakarta	P Padang	

Source: *Indisch Verslag*, 1938, vol. II, pp. 19-21 (Batavia, 1938).

the province of West-Java; Soerabaja and Semarang are two of the leading ports of Java. Bandoeng is an important centre in the uplands of western Java, while Soerakarta and Jogjakarta are the capitals of the native states which bear their name. Palembang is the leading industrial centre and port in Sumatra. Each of these towns has expanded rapidly in recent years.

Of the ten centres with a population of from 50,000 to 100,000, six are in Java, two in Sumatra, one in Borneo and one in Celebes. The Javanese towns of this size are Cheribon, Koedoes and Pekalongan in the densely peopled northern plains and Buitenzorg, Magelang and Malang in the central upland regions. Buitenzorg is the seat of the Governor-General. The towns in the Outer Provinces included in this group are Medan, the important market town for the plantation regions of north-east Sumatra; Padang, the main town on the west coast of Sumatra; Bandjermasin, the chief commercial centre in Borneo; and Makassar, the largest town in Celebes and the second largest town in the Netherlands Indies outside Java (Fig. 23).

Seventy-nine of the hundred and one towns with between 10,000 and 50,000 inhabitants are in Java. Most of these are market towns situated in the centre of densely peopled plains or upland basins. Of the twenty-two in the Outer Provinces within this group, twelve are in Sumatra, four in Borneo, three in Celebes, one in the Moluccas and two in Bali. Thirteen of these are ports and the rest are market towns.

The towns of the Netherlands Indies vary greatly in character and appearance. Many of the larger urban centres, such as Batavia and Bandoeng, are well laid out with finely constructed public buildings and luxurious gardens. The towns of Soerakarta and Jogjakarta have fortresses which bear witness to the struggles of the Dutch with the Javanese in former times; among the principal buildings are the palaces of the native sultans, who still hold nominal control over the states of Soerakarta and Jogjakarta. In contrast to these large towns, the smaller ones are frequently little more than enlarged villages, with narrow streets and few or no public buildings. A distinctive feature of a large proportion of the towns in Java and in the Outer Provinces is the division of the towns into separate quarters for the native, European, Chinese and Arab populations (Plates 67, 70, 75).

THE EUROPEAN POPULATION

Until the opening up of the East Indies to Western enterprise

shortly after the middle of last century there were relatively few Europeans, other than officials, living in any of the islands. Since 1870, when the new agrarian policy was adopted, the European population has steadily increased from 49,101 in this year to 91,142 in 1900, 168,114 in 1920 and 240,417 in 1930. The numbers of Europeans in each of the main islands and island groups in 1930 is shown in the table below.

	No. of Europeans	% of Total Population
Java and Madoera	192,571	0.46
Sumatra	28,496	0.35
Borneo	5,639	0.26
Lesser Soenda islands	1,528	0.45
Celebes	7,683	0.15
Moluccas	4,296	0.74
New Guinea	204	0.06
	<hr/> 240,417 <hr/>	<hr/> 0.40 <hr/>

Source: *Indisch Verslag*, 1938, vol. II, pp. 12-15 (Batavia, 1938).

About 80% of the Europeans live in Java and Madoera and of the number dwelling here over half reside in the four Regencies of Batavia, Bandoeng, Semarang and Soerabaja. A high proportion of the 47,846 Europeans living in the Outer Provinces are settled in a few localities: thus, 11,079 out of the 28,496 in Sumatra inhabit the Oostkust Residency, 3,529 out of the 4,562 in Borneo are in the Bandjermasin and Samarinda districts, whilst in Celebes and the Moluccas the majority of the Europeans are found in the three towns of Makassar, Manado and Amboina.

In 1930 the number of Europeans gainfully occupied was 85,321 or 35% of the total. The numbers employed in each of the major occupation groups are given in the table on p. 131. This table shows that 24% of the Europeans were engaged in official government positions and in the army, 22% in the production of raw materials, either as plantation owners or in mining concerns, while transport, commerce and the liberal professions each claimed about 13% of the total. The remaining 14% comprised those living on their incomes (9%) and those in industry (5%). Almost half of the Europeans in government service lived in the towns of West-Java, principally Batavia, Buitenzorg and Bandoeng. In the other parts of Java the occupations of the Europeans were more differentiated. In Sumatra, about 25% of the Europeans work on agricultural estates and in Borneo most of them are employed in the oil industry.

The nationality of the Europeans in the Netherlands Indies in 1930 is indicated in the following table.

Nationality	Java and Madoera	Outer Provinces	Total
Dutch	172,996	35,273	208,269
Germans and Austrians	4,774	2,607	7,381
Japanese	3,983	3,212	7,195
British	1,469	945	2,414
Swiss	301	489	790
Americans	289	354	643
Belgians	491	134	625
Armenians	467	75	542
Scandinavians	280	208	488
French	351	63	414
Filipinos	79	203	282
Russians	194	44	238
Italians	175	11	186
Poles	78	54	132
Turks	114	16	130
Czecho-Slovaks	94	27	121
Hungarians	72	38	110
Others	643	169	812
Native races	5,335	3,613	8,948
	192,571	47,591	240,162

Source: *Indisch Verslag*, 1938, vol. II, p. 16 (Batavia, 1938).

Both in Java and Madoera and in the Outer Provinces the Dutch are in the overwhelming majority. The only other large groups of European origin are those of German and of British nationality. The term 'Europeans' includes not only whites, but also all those holding the legal status of a European; this explains the inclusion in the table of a number of Japanese, Filipinos, Turks and various groups of natives. Eurasians, commonly known in the Indies as Indo-Europeans or Indos, form a high proportion of the total European population, though no accurate statistics are available.

The European population is composed partly of permanent and partly of temporary residents. In the early days of European settlement in the Netherlands Indies immigration was almost always of a temporary nature, but, though this is still true for most of the European community, the proportion of permanent residents has recently grown enormously. This may be ascribed to an increase in the number of births* and to the fact that many of the children born

*As the vital statistics given in the census returns relate to the entire European population and do not discriminate between the Asiatics and the Europeans proper they cannot be said to give a true picture of the demographic conditions. According to the statistics available the birth-rate fluctuates between 23 and 27 per thousand and the death rate between 15 and 20 per thousand.

here have, after a short sojourn abroad, elected to make their home in the Netherlands Indies. The increase in the number of births has arisen as a result of the large percentage of young married persons among the Europeans. The sex-ratio is fairly evenly balanced, though this has been a relatively recent development, for in 1880

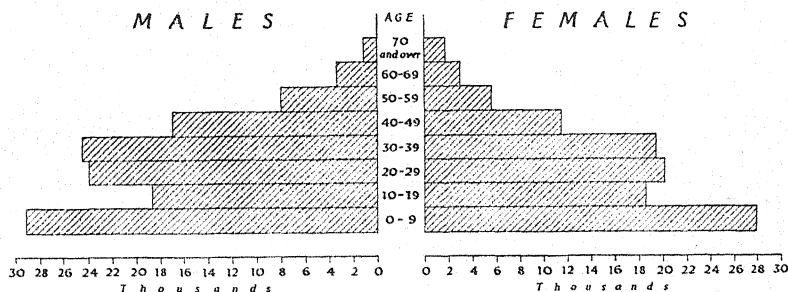


Fig. 24. Age-groups of the European population

Source: *Indisch Verslag*, 1938, vol. II, p. 30 (Batavia, 1938).

there were less than 500 women per 1,000 men. Since 1900 the number of women has increased at a far more rapid rate than the number of men, so that in 1930 the sex ratio was 884 women to 1,000 men. This ratio does not vary greatly from one age-group to another, except in the group of those over 70 years, when the number of women exceeds that of the men, an anomaly which is probably due to the return of bachelors to the Netherlands on retirement (Fig. 24).

THE CHINESE POPULATION

The settlement of Chinese in the East Indies dates back many hundreds of years. They were important and influential long before the entry of the Europeans and they remain to this day the largest non-native group. Their numbers have increased from 221,438 in 1860 to 1,233,214 in 1930, almost a sixfold increase in seventy years. Most of the Chinese come from the provinces of Fukien and Kwangtung in southern China. Fig. 25 shows the distribution and the table below the numbers of the Chinese in the Netherlands Indies in 1930.

	No. of Chinese	% of Total Population
Java and Madoera	582,431	1.4
Sumatra	448,552	5.4
Borneo	134,287	6.2
Celebes	41,402	0.9
Lesser Soenda islands	17,816	0.5
Moluccas	7,454	1.3
New Guinea	1,272	0.4
	<hr/> 1,233,214 <hr/>	<hr/> 2.0 <hr/>

Source: *Indisch Verslag*, 1938, vol. II, pp. 12-15 (Batavia, 1938).

The Chinese are far more widely dispersed than the Europeans, but large concentrations are found in all the principal towns; thus,

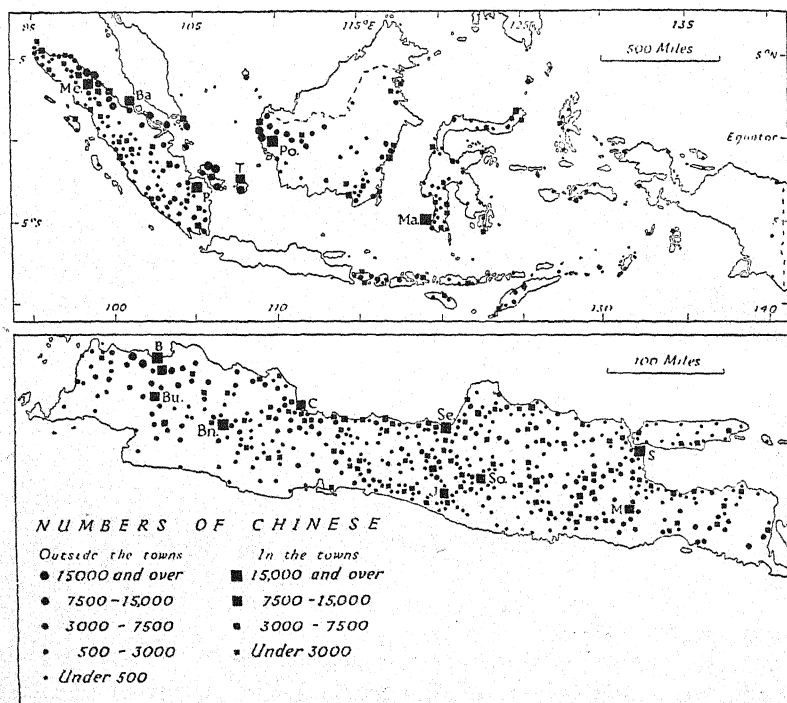


Fig. 25. Distribution of the Chinese population

B Batavia	J Jogjakarta	Po Pontianak
Ba Bagansiapiapi	M Malang	S Soerabaja
Bn Bandoeng	Ma Makassar	Se Semarang
Bu Buitenzorg	Me Medan	So Soerakarta
C Cheribon	P Palembang	T Tandjoengpandan

Source: Folding map at end of *Volkstelling*, 1930, *Deel VII. Chinezen en Andere Vreemde Oostelingen in Nederlandsch-Indië* (Batavia, 1935).

one-third of the Chinese in Java live in the three Regencies of Batavia, Semarang and Soerabaja. A striking feature of their distribution is the high proportion in the Outer Provinces. Many thousands have been drawn to the tin mines of Bangka and Billiton and to the European plantations in north-eastern Sumatra. Over 300,000 of the Chinese in Sumatra are in these regions. In Borneo, 75% dwell in the two districts of Singkawang and Pontianak on the west coast.

In 1930 the number of Chinese gainfully occupied amounted to 469,935 (see table on p. 131). Over one-third were engaged in commerce, especially as petty traders and shopkeepers. Another third gained their livelihood from agricultural activities, market gardening, fishing and mining. Industry, which accounted for a fifth of the total, was the only other large occupational group; woodworking and the preparation of foodstuffs were the main industrial activities.

Considerable intermixture has taken place between the Chinese and the native peoples, since until recently relatively few women accompanied the Chinese immigrants. Even to-day the sex ratio is unbalanced, the number of males exceeding that of the females by

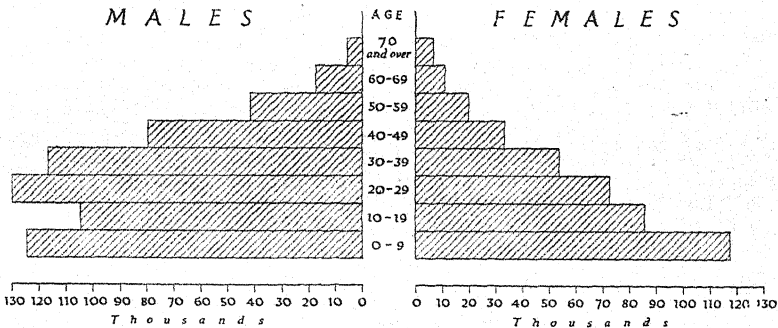


Fig. 26. Age-groups of the Chinese population

Source: *Indisch Verslag*, 1938, vol. II, p. 40 (Batavia, 1938).

over 250,000. About one-third of the Chinese are between the ages of 20 and 40 and in this age-group there are 325,209 males to 159,651 females or a ratio of two to one. The high proportion of this age and the lowness of the marriage rate—about 40% of the Chinese over the age of fifteen are celibate—is due to the large number who emigrate from China to the Netherlands Indies, remain a few years and then return home. Few stay in the Indies after they have reached the age of fifty (Fig. 26).

THE ARAB POPULATION

Among the non-indigenous population groups of the Netherlands Indies the Arabs come next to the Chinese and Europeans in order of size and importance. They numbered 71,335 in 1930, most of whom originate from the Hadhramaut region of south-central Arabia. Although nearly 60% of the Arabs live in Java and Madoera they are found scattered widely in most of the islands. They are mainly occupied in the retail trade or as commercial middlemen.

The Arabs, like the Chinese, have to a large extent mixed with the native peoples, without losing their distinctive position in society. Unlike the Chinese, however, they almost always settle permanently in the country. They are highly respected by the native peoples.

BIBLIOGRAPHICAL NOTE

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2. The following articles will be found useful for a study of the distribution and density of population:

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G. Kuperus, 'The relation between density of population and utilization of soil in Java' *Comptes Rendues du Congrès International de Géographie, Amsterdam*, 1938, II. pp. 465-77 (Leiden, 1938).

E. C. J. Mohr, 'The relation between soil and population density in the Netherlands East Indies' *Comptes Rendues du Congrès International de Géographie, Amsterdam*, 1938, II. pp. 478-93 (Leiden, 1938).

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3. There is a short account of the European, Chinese and Arab populations in J. S. Furnivall, *Netherlands India* (Cambridge, 1939) and in Amry Vandenbosch, *The Dutch East Indies* (Berkeley, 1942). See also C. L. van Doorn, 'The European Population of the Dutch East Indies' *Asiatic Review*, vol. xxvi, pp. 509-16 (London, 1930), and Leonard Unger, 'The Chinese in South-east Asia' *Geographical Review*, vol. xxxiv, pp. 196-217 (New York, 1944).

Chapter VI

AGRICULTURE

General Features: Irrigation: Chief Crops: Livestock: Horticulture:
Distribution of Crops and Livestock: Agricultural Policy:
Land Tenure: Fisheries: Bibliographical Note

GENERAL FEATURES

The Netherlands Indies have long held a unique place among tropical countries because of the quantity, variety and excellence of their agricultural products. In the sixteenth century, when they first began to play a part in European history, the East Indies became famous as the source of the much-coveted spices. In modern times the spice trade has become of very minor importance, but for many tropical products, such as cane sugar, the Netherlands Indies have captured a share of the world market quite out of proportion to their size and for others, such as quinine, they have had a virtual monopoly. In few other tropical countries have agricultural exports played such an important part in the national economy. In 1939 about 10 million acres out of a total cultivated area of some 40 million acres were planted with crops for export, and agricultural products accounted for 65 to 70% of the total value of exports and earned more than a third of the national income. Besides producing such a great volume of exports, the agriculture of the Netherlands Indies provides the greater part of the rice and other food required to feed the population of the islands.

For this pre-eminence in tropical agriculture there are several reasons. The East Indies, especially Java, have been generously endowed by nature. The soil, chiefly owing to the rejuvenating effects of volcanic eruptions (see chap. i of vol. I of this Handbook), is much more fertile than that of many other tropical countries and the climate suits a great number of different crop plants; even where rainfall is deficient the drainage from the mountains gives a plentiful supply of water for irrigation. More important, probably, than any of these factors are the organizing ability of the Dutch, the intelligence and energy with which they have developed scientific research and applied its results to practical affairs, and the presence of an

industrious native population schooled by a long tradition in the practice of agriculture.

In agriculture, as in almost everything else, there is a sharp contrast between conditions in Java and Madoera and those in the rest of the Indies (the Outer Provinces or *Buitengewesten*). In densely populated Java almost all suitable land is used for agriculture, much of it intensive and on more or less scientific lines; over three-fifths of the whole island is cultivated. The table (p. 172), shows that 60% (by weight) of all the agricultural produce exported from the Netherlands Indies in 1937 came from Java and Madoera. On the other hand, in the sparsely populated Outer Provinces there are vast areas of primitive forest and waste land and, except in parts of Sumatra and in Bali, agricultural land occupies only a small fraction of the total area. The predominant agricultural system in the Outer Provinces is *ladang* or shifting cultivation; patches of forest are cleared and crops are grown on them for one or two seasons; afterwards the land is abandoned and forest allowed to grow up again. It is thus very difficult to generalize about agriculture in the Netherlands Indies; at one extreme, there is highly scientific, intensive agriculture producing crops mainly for export, at the other, primitive subsistence agriculture carried on by the natives in exactly the same way now as for centuries past.

PLANTATION AGRICULTURE AND NATIVE AGRICULTURE

Agriculture in the Netherlands Indies is partly in European, partly in native hands. European agriculture is carried on in large plantations, the land mostly being held on long lease from the government or from native rulers. The crops are mostly intended for export and the methods of cultivation are modern and scientific. Native agriculture is on a much smaller scale and carried on by more primitive methods. Though the natives practise agriculture mainly for subsistence, they also produce a considerable and increasing share of the exports—about 40% in 1938. By education, and by irrigation and other means, the government has done much to help the native cultivator to increase the yield of his land and raise the quality of his crops, even where, as in Java and Bali, agriculture was already highly developed before Dutch rule was introduced.

Though some crops are grown mainly on European plantations, others mainly on land farmed by natives, there are very few crops which are exclusively European or exclusively native. The chief food

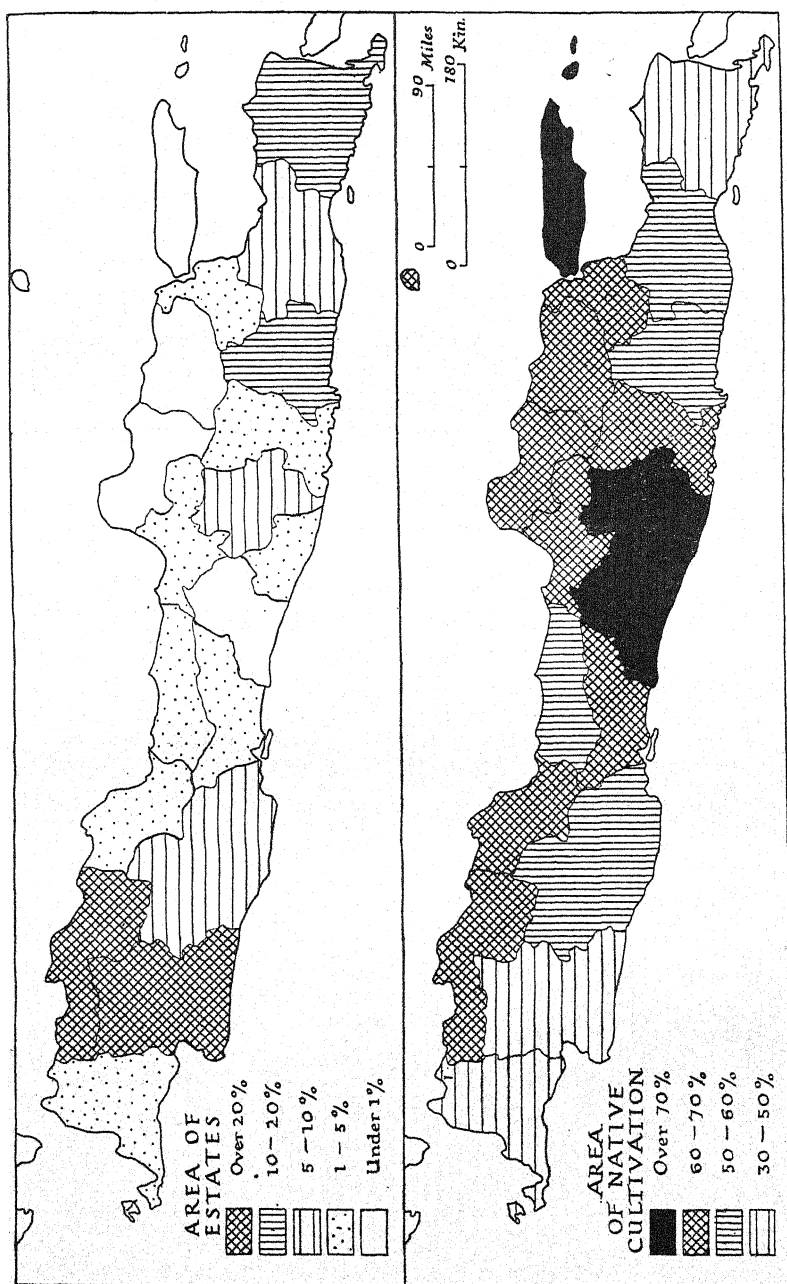


Fig. 27. Java and Madoera. Percentage of area under native cultivation and under estates

Source: *Indisch Verslag*, 1938, vol. II, pp. 240, 243 (Batavia, 1938).

crops, especially rice, which is by far the most important single crop in the Netherlands Indies, are cultivated almost entirely by the natives. Sugar, tea, cinchona and palm oil on the other hand are mainly plantation crops. Some export crops, such as pepper, are mainly native grown. Coconuts and cassava (tapioca) are grown by Europeans and natives equally. The better grades of tobacco are grown on

Exports of agricultural products, Netherlands Indies, (1937)

Exports are classified according to their place of origin, irrespective of the port of shipment. Native products processed on estates are reckoned as native. The estate share of sugar exports is estimated. All weights are net, except potatoes, gambir, cinnamon, soya beans, cloves, nutmegs, broken rice and tapioca refuse.

Product	Weight (metric tons)					Value (f 1,000)
	Estate		Native		Total	
	Java and Madoera	Outer Provinces	Java and Madoera	Outer Provinces		
Agave and other other fibres	31,803	56,950	114	1	88,968	15,269
Betel nut	—	—	6,797	49,593	56,390	5,704
Cinchona products	5,751	802	—	—	6,553	10,300
Cinnamon	—	—	84	2,289	2,373	642
Cloves	—	—	—	542	542	302
Coca leaf	133	—	—	—	133	63
Cocoa	1,306	5	—	29	1,340	659
Coconut products	4,289	27,776	102,983	470,894	605,942	72,113
Coffee	22,033	8,368	—	67,998	98,399	25,868
Gambir	—	3,335	—	2,786	6,121	1,226
Essential oils	250	539	1,101	203	2,099	2,858
Gutta percha	143	—	—	—	—	351
Kapok products	7,122	68	47,060	5,359	59,609	8,899
Maize	—	—	138,230	76,641	214,871	6,766
Nutmeg products	162	897	—	4,065	5,124	2,073
Palm oil products	10	238,356	—	—	238,366	29,051
Pepper	95	70	—	31,118	31,283	6,993
Potatoes	—	—	249	818	1,067	69
Rice products	—	—	57,747	18,903	76,650	3,431
Rubber products	85,574	144,605	—	208,550	438,729	296,772
Soya beans	—	—	11,158	504	11,662	550
Sugar and molasses	1,342,002	—	8,861	1	1,350,864	51,108
Tapioca products	90,144	—	351,124	5	441,273	18,383
Tea	38,988	15,558	12,170	—	66,716	49,061
Tobacco products	22,118	11,887	14,777	264	49,046	41,070
TOTAL, including all other agricultural products	1,652,148	509,577	809,375	1,007,740	3,978,840	660,053
Total, 1935					3,275,297	294,527
Total, 1928					5,139,770	1,237,066

Source: *Indisch Verslag*, 1938, vol. II, pp. 274-5 (Batavia, 1938).

European estates, the lower grades by natives. The increase in the native contribution to rubber production is one of the most significant changes in the agriculture of the last twenty years. Rubber planting in the Netherlands Indies began about 1900 and for about twenty years was almost entirely in European hands. When the success of the European plantations had become apparent and it had become clear that neither a great deal of effort nor a high degree of technical skill was necessary for good returns, the natives began to plant rubber on a large scale, particularly in the Djambi and Palembang districts of Sumatra and in Borneo. The export of native-grown rubber rose from about 13,000 tons in 1919 to 92,712 tons in 1938. When prices are low the natives abandon their plantations and resume production when the market improves. Since, for obvious reasons, European planters cannot do this, it is not unlikely that the rubber industry will eventually pass entirely into native hands.

METHODS OF CULTIVATION

A distinction has already been drawn between the permanent and the shifting systems of cultivation, the former practised in Java and other economically well developed parts of the Netherlands Indies, the



Fig. 28. Ploughing with oxen, Narmada, Lombok

Drawn from a photograph.

latter in the more backward areas of the Outer Provinces. A further distinction must be noted between the two main types of permanent agriculture, the 'wet' or embanked system and the 'dry' or unembanked system. In 'wet' cultivation the land is periodically flooded by artificial irrigation or from natural sources of water such as streams and rainfall. The chief crops grown by the 'wet' method are rice, sugar, soya beans and cotton. Most other crops are generally grown on 'dry' land.

The implements used in cultivation vary from the most up-to-date machinery on European plantations to the simplest possible native tools. In Java the rice fields are ploughed with oxen in the east and buffaloes in the west. The plough used for irrigated land is of teak with a yoke of bamboo, the point being tipped with iron. For dry and mountain cultivation a simpler and lighter plough is used. The small Chinese plough, drawn by one buffalo, is used for gardens and small fields. Besides a plough the chief items in the equipment of the Javanese peasant are a harrow, the *patjoel* or hoe, a small hatchet or weeding knife called the *arit*, the *ani-ani*, a knife used for reaping the rice ears, and sometimes a roller and a dibble.

SOIL EROSION

In recent years it has come to be realized that no system of cultivation is satisfactory which does not eliminate or at least reduce the danger of soil erosion (see chap. XI of vol. I of this Handbook and p. 240). In the Netherlands Indies erosion has not yet become a major problem, as it has in so many other countries, but the danger cannot be neglected. The various methods of cultivation practised by natives and Europeans expose the soil to the risk of erosion to very different degrees. In *sawah* cultivation erosion is almost entirely eliminated, which is one of the chief reasons for the sustained productivity of native Javanese agriculture. On the other hand, native dry fields or *tegallan* in permanent cultivation, especially when situated on steep slopes, rapidly lose their fertility owing to the washing away of the surface soil. The primitive *ladang* system, however, whatever may be its other disadvantages, does not lead to erosion unless followed by frequent burning, as in the damp climate of the Netherlands Indies the abandoned fields become so rapidly overgrown with weeds that the soil is soon adequately protected. The agricultural authorities have for some time been increasingly aware that the first duty of the cultivator is to maintain the fertility of the

soil by protecting it against erosion. It is now realized that meticulous weeding and hoeing does more harm than good, as it loosens the soil and allows it to be more easily washed away. On plantations, particularly in the mountains, various anti-erosion measures are becoming common practice, such as terracing, contour ploughing, digging of catchment ditches (*rorak*) and holes and the planting of contour strips with evergreen shrubs and green manures. On the tea plantations it is now the custom to spread the prunings on the ground between the bushes; this has the advantage of increasing the humus content of the soil, as well as protecting it against erosion. It is claimed by some that where adequate measures are taken, the danger of erosion need be no greater on a well managed plantation than under a natural forest cover. The introduction of anti-erosion measures in native cultivation is a more difficult problem. The only solution is gradually to educate the native cultivator to the importance of erosion and to make him aware of the advantages of taking sufficient care of the soil. Some measures needed to control erosion, such as afforestation (p. 244) and flood control, are problems for the forester and the engineer rather than the agriculturalist.

IRRIGATION

Irrigation is necessary over large parts of the East Indies, partly because in many places, as in east Java, there is a long period during the east monsoon when there is very little rain, partly because the principal native food crop, rice, though it can be grown in unirrigated fields (called *tegal* in Java), is more profitably grown in fields (called *sawah*), flooded to a depth of a few inches during the greater part of the

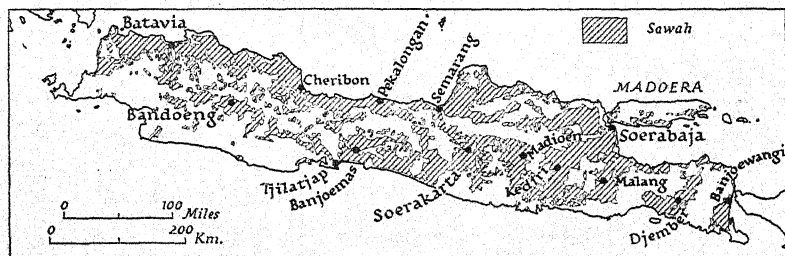


Fig. 29. Area of *sawah*, Java and Madoera

Source: *Atlas van Tropisch Nederland*, plate 17 (Batavia, 1938).

growing seasons. In the hill country of Java the flooded *sawah* are arranged in terraces up the hillsides and form a charming and characteristic element in the scenery. Sugar and various other major crops require, or do best, under irrigation. Irrigation has the advantage that a supply of mineral plant food is carried in solution in the water supply (Fig. 29).

The quantity of water needed for rice cultivation is considerable, but varies with the porosity of the soil and the stage of growth of the crop. The average requirement is about 3·6–5·4 galls. per acre per minute on clay soil and up to more than twice this amount on more porous loamy or sandy soils. During the west monsoon the rice crop receives the whole of the irrigation water, but in the east monsoon part of the supply is diverted to other crops. Since in all the larger East Indian islands there are mountains receiving an abundant rainfall at all times of the year, the necessary water is not far to seek. All that is needed is to canalize it, take it where it is wanted and make arrangements for regulating the flow at different times of year.

In Java the greater part of the cultivated land, except in the high mountains, is irrigated. Elsewhere, irrigation on a large scale is found only in Bali and parts of Sumatra and Celebes.

NATIVE IRRIGATION SYSTEMS

The natives of Java and Bali have practised irrigation since long before the coming of the Dutch, probably indeed since before the Indian invasion. The native methods can be seen at their highest development at the present day in Bali. Here the *sawah* are supplied from reservoirs or *wadoek*, by means of aqueducts and channels constructed with extraordinary ingenuity. In each district the control of the water supplies is in the hands of a remarkable native institution, a kind of co-operative society called a *soebak*, which in addition to dealing with irrigation settles questions of land ownership and other agricultural matters. In Java a large part of the cultivated land is still supplied with water by native irrigation systems, which as in Bali are skilfully constructed, but since at best these native systems have many disadvantages, they are being gradually supplanted by modern large-scale irrigation works. In the Westkust Residency of Sumatra the Menangkabau have developed a system of irrigation, peculiar to themselves, making use of water wheels.

The commonest type of native irrigation system in Java begins with the construction of a weir in a river, made of stones and brushwood or bamboo, twigs, leaves and soil being added to make it hold water. Channels are then built which take off the water and lead it through a system of distributaries to the *sawah*, to which it is admitted either through cuts in the dykes or through bamboo pipes. The water runs slowly over the fields and from one terrace to the next till it is eventually led away in drainage channels.

MODERN IRRIGATION WORKS

Though the native irrigation systems show great ingenuity in using the simple materials available, they are inefficient in several ways. During the wet season floods often damage the weirs or wash them away entirely. It is difficult to regulate the supply of water properly and the stream often makes for itself a new course round the weir so that the irrigation system is left dry. At other times the stream may become diverted so that the irrigation inlet becomes its main channel. For these reasons the government has spent much money and energy in constructing irrigation systems built on modern engineering principles. A number of these waterworks in Java, for instance that at Demak in the Residency of Semarang, date back to the time of the Culture System (see p. 84) in the early nineteenth century, but progress did not really begin till 1885 when the Irrigation Brigade was set up as a special section of the Corps of Engineers. The first Irrigation Division (*Irrigatie Afdeeling*) was created in 1889 to deal

District	River	Irrigated area (acres)
Bantam	Tjioedjoeng	76,600
Krawang	Tjitaroem	192,700
Indramajoe	Tjimanoeek	244,600
Tegal	Pemali	76,600
Tegal	Goeng	45,200
Koedoes (Demak water-works)	Toentang and Serang	81,500
Madioen	Madioen	35,800
Soerabaja (Sidoardjo delta)	Brantas	84,000
Kediri (Waroedjajeng and Kertosono districts)	Brantas	35,800
Djember	Bedadoeng	44,500
Djember	Majong	28,400
Djember	Bondojoedo and Tanggoel	59,300
Bondowoso	Sampean	44,500

Source: *Handbook of the Netherlands East Indies*, p. 209 (Batavia, 1930).

with the Serajoe, the chief river of the south coast. This undertaking was so successful that a general irrigation scheme was introduced and by 1912 there were seven Irrigation Divisions in full working order. In 1937 2,736,800 acres were irrigated by modern systems. The table on page 177 shows the areas supplied from some of the chief rivers (Plate 34).

The areas irrigated by these modern works are divided into compartments of about 250 acres. A weir and one or more head sluices (with sliding gates for regulating the water intake) are built in the river. One or two scouring sluices are also constructed at right angles to the head sluices to prevent coarse material being carried into the irrigation canal. From the main canal the water runs through branches into the fields, the intake of each branch being regulated by gates. Where the irrigation canals have to cross roads or rivers, aqueducts, culverts, or inverted syphons are built. The main Pemali canal flows through one of the largest aqueducts in the world and the drainage water from the Watoedakon irrigation area (about 32,000 acres) is carried under the Brantas river in a reinforced concrete inverted syphon with a maximum capacity of 212 cu. ft. per sec.

The construction and maintenance of the irrigation works and the equitable distribution of the water gives rise to intricate problems of administration. The central government provides for the construction of new works, but since 1918 maintenance has been gradually made over to Irrigation Boards (*Waterschappen*), which are now controlled by the provincial governments. The supply of water to European plantations is managed by the Irrigation Service, but the distribution of water among the native cultivators is left to the villages concerned.

Contrary to the practice in British India, water is supplied free to the native cultivators; there is no water rate and no increase in the land tax because water is supplied by the State. Planters, however, contribute towards the cost of supplying water to their estates.

CHIEF CROPS

The following table shows the production of the chief crops on European (including government) plantations, together with the areas occupied by each. Cantala, hemp, sisal and other fibres are not included as returns for them are no longer published.

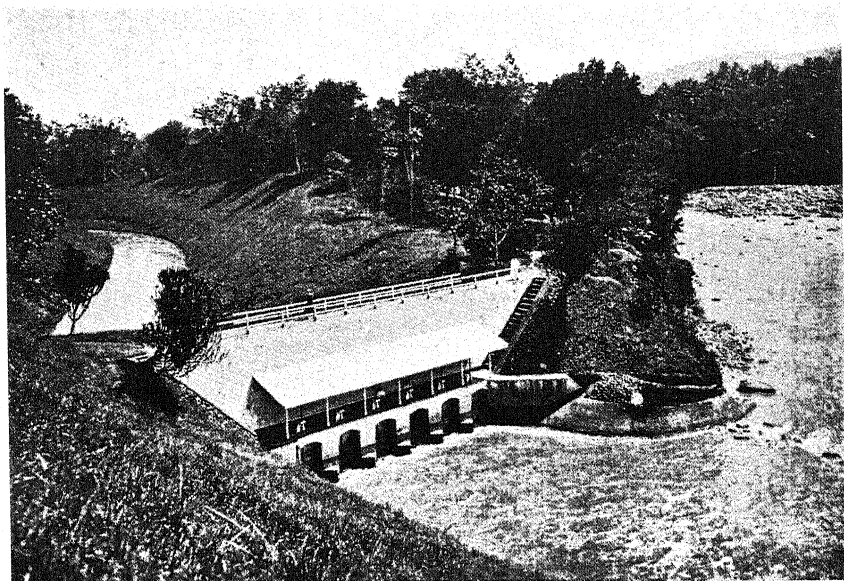


Plate 34. Irrigation sluice on the Kali Serajoe near Banjoemas



Plate 35. Harrowing in flooded rice field, Bali

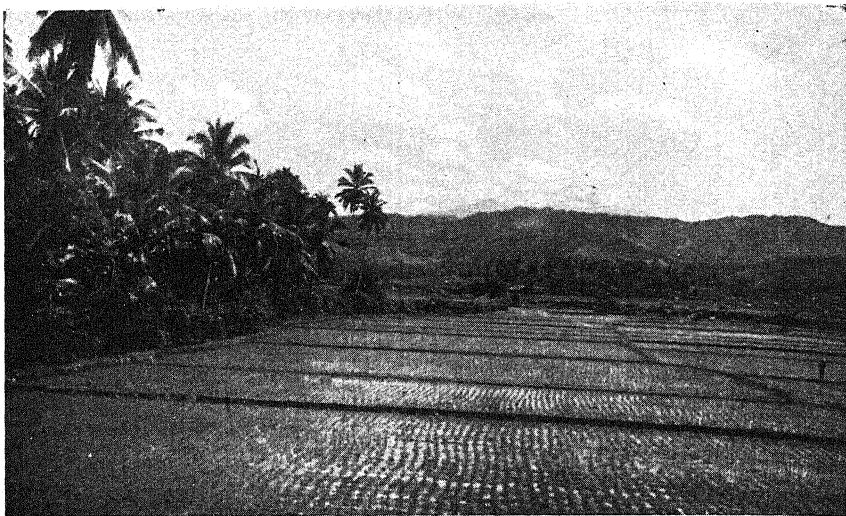


Plate 36. Rice fields, Bali

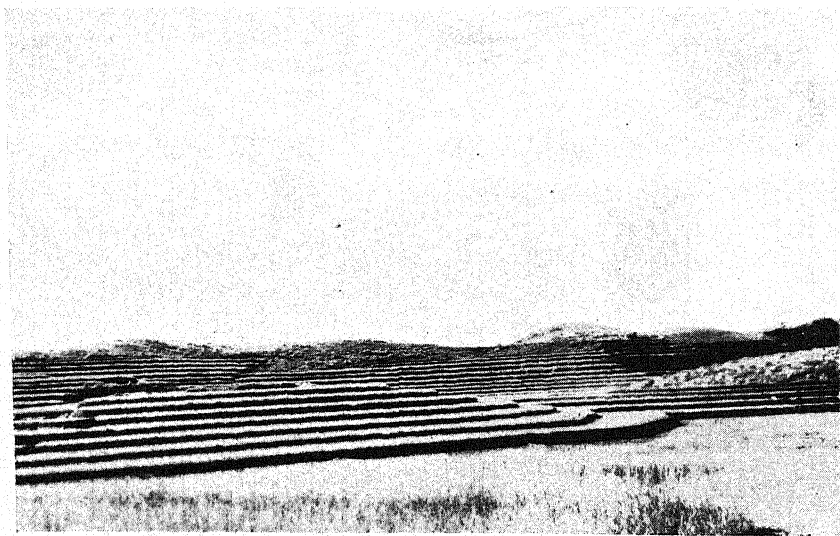


Plate 37. Terraced rice fields, near Pematangsiantar, Sumatra

*Production and area of the chief plantation crops,
Netherlands Indies (1937)*

Crop	Java and Madoera		Outer Provinces		Total Production (1,000 m. tons)
	Number of estates	Area planted (1,000 acres)	Number of estates	Area planted (1,000 acres)	
Cinchona (quinine)	99	38.0	9	4.4	10.4
Coca (cocaine)	50	1.7	2	—	0.1
Cacao (cocoa)	29	15.0	8	2.5	1.7
Coffee	325	229.8	—	—	62.4
Copra	141	17.0	524	104.2	32.7
Gambir (cutch)	—	—	12	3.7	3.3
Essential oils	90	16.5	4	—	0.5
Ficus (rubber)	48	5.9	17	3.0	—
Gutta percha	1	2.7	2	0.5	0.1
Kapok	174	57.5	39	3.5	—
Nutmeg	15	4.2	17	2.7	—
Palm oil	5	1.9	58	203.8	—
Pepper	34	5.9	12	0.5	—
Rubber	604	562.1	593	905.4	245.0*
Sugar	37	88.0	—	—	574.7*
Tea	297	259.0	38	84.5	74.5*
Tobacco	36	72.7	47	32.1	47.5

* Including purchases from natives.

Source: *Indisch Verslag*, 1938, vol. 11, pp. 266-8 (Batavia, 1938).

The following figures for the chief native crops give the areas only. No data are available for native crops in the Outer Provinces.

Area of the chief native crops, Java and Madoera (1937)

Only annual crops are included. Twice-cropped areas are reckoned twice.

Thousands of acres

Cereals:	
Rice, wet	8,591
Rice, dry	966
Maize	5,112
Root crops:	
Cassava (tapioca)	2,347
Yams	447
Potatoes	25
Other roots	274
Pulses:	
Peanuts	581
Soya beans	872
Other pulses	519
Other crops:	
Tobacco	371
Miscellaneous	1,374
Total area	21,479,000 acres

Source: *Indisch Verslag*, 1938, vol. 11, pp. 260-1 (Batavia, 1938).

RICE

Rice is the chief subsistence food crop of the Netherlands Indies. In Java it has been cultivated for many centuries and it is generally held that the name Java (*Jawa-dwipa*) means 'rice island'; *sawah* or 'wet' rice cultivation is so nearly synonymous with agriculture that in the Javanese and Soendanese languages the same word, *tani*, is used for both.

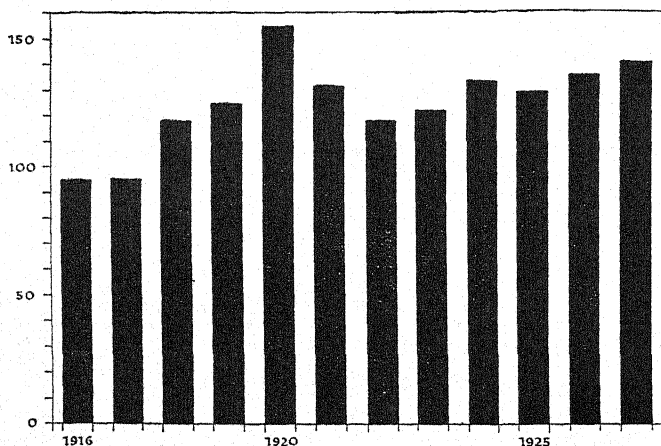


Fig. 30. Proportion of vegetables, other than rice, in native diet

The proportion of other vegetables is calculated on the basis of the amount of rice eaten, each year being 100. The sudden rise in 1920 was due to the partial failure of the rice crop. The tendency towards a more mixed diet is clearly shown. Source: M. B. Smits, 'Rice imports of the Netherlands Indies' *Proceedings of the 4th Pacific Science Congress, Batavia-Bandoeng, 1929*, vol. IV, pp. 236-7 (Batavia-Bandoeng, 1930).

Except in a few small regions, rice is the staple food of the natives throughout the Netherlands Indies and in Java and Madoera alone over three and a half million tons of rice are grown annually. Though rice is by far the largest single item in the native diet, the average amount of rice consumed is now less than it used to be. From 1856 to 1880 the average annual consumption per head was 251 lbs., but in 1927 it was only 218 lbs.; from 1916 to 1927 the proportion of rice in the average native diet fell from 51 to 42.5%. This fall in rice consumption has been due to an increase in the amount eaten of other vegetable foods such as cassava and soya beans. The trend towards a more mixed, and therefore better balanced, diet is shown in Fig. 32.

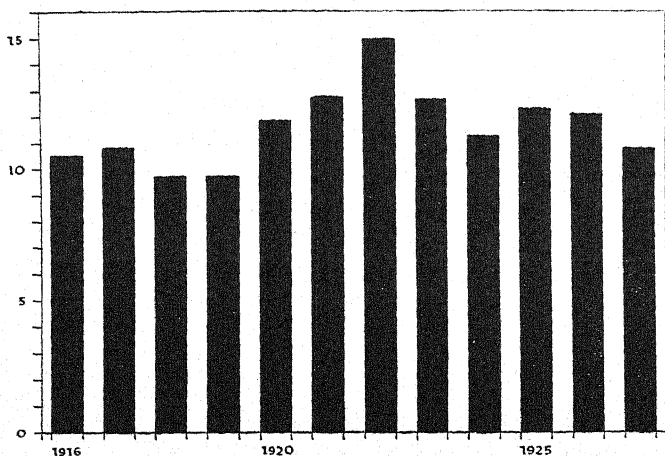


Fig. 31. Proportion of pulses in native diet

The total of starchy foodstuffs is taken as 100 for each year. Though the diet is becoming more mixed, there is no upward trend in the consumption of pulses.

Source: as for Fig. 30.

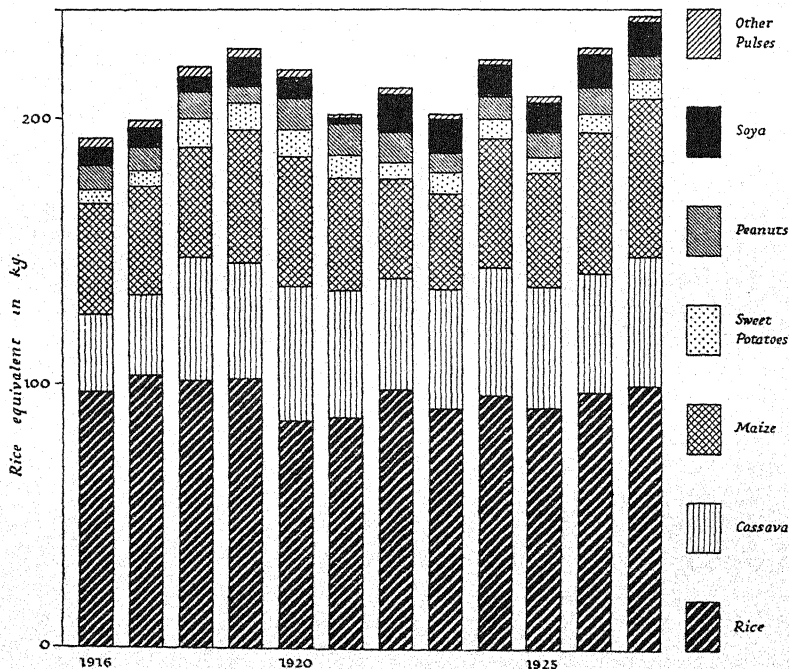


Fig. 32. Consumption of vegetable foods per head of native population

The foods are expressed in terms of calorific values on the basis of carbohydrates 1, protein 5.5 and fat 2.3. Thus, if 1 kg. of rice=100, 1 kg. of cassava is 32, sweet potatoes 23, maize 112, soya 234 and peanuts 247.

Source: as for Fig. 30.

Cultivation

The rice plant can only grow under comparatively moist conditions, but provided the climate is sufficiently wet, as it is throughout the greater part of the Netherlands Indies, two methods of cultivation are possible, the 'dry' or *ladang* (also called *tegal*, *hoemah* or *gaga*) system and the 'wet' or *sawah* system. In the 'dry' system the seed is sown in ordinary soil, preferably on newly cleared forest land; in the 'wet' system young plants are transplanted into flooded fields. Different varieties of rice, adapted to different conditions of growth, are used in the two methods. 'Dry' cultivation is the simplest and probably the oldest form of rice cultivation, but the average yield is only about 4.6 cwt. per acre as compared with about 7.8 by the 'wet' method; it is also much more dependent on variations in the weather and the soil. Because it soon exhausts the ground, 'dry' cultivation is generally shifting and leads to reckless clearing of the forests. For this and other reasons it has been discouraged by the government. In Java and Madoera 7,856,400 acres of rice land were cultivated in 1927 on the 'wet' system and 1,202,975 on the 'dry' (Fig. 33). In recent years 'dry' cultivation has increased because the growth of the population has made an expansion of rice production necessary when all land suitable for 'wet' cultivation is already occupied. Outside Java 'wet' cultivation is practised in Sumatra and central Celebes, but elsewhere among the more backward native peoples it is almost exclusively the 'dry' method which is found.

The *sawah* or 'wet' rice fields are divided into compartments by low dykes which allow them to be flooded or drained at will. They are found both in the plains and on hill slopes up to about 3,500 ft. As a rule they are arranged in embanked terraces which hold the water or allow it to flow through sluices from one terrace to another. The water supply may be rain only, or it may come from rivers by means of irrigation canals (Plates 35-7).

On fertile land there may be two rice crops in the year, but often secondary crops, of which the chief are maize and peanuts, are grown alternately with the rice. The rice seed for the *sawah* is generally sown in the seed beds in October, at the beginning of the rainy west monsoon; planting follows as soon as the fields are sufficiently saturated to be cultivated, which may be in October or as late as January or February. The harvest is reaped from three and a half to six months after the planting-out of the young plants.

The young plants are usually laid out on the wet soil by the men,

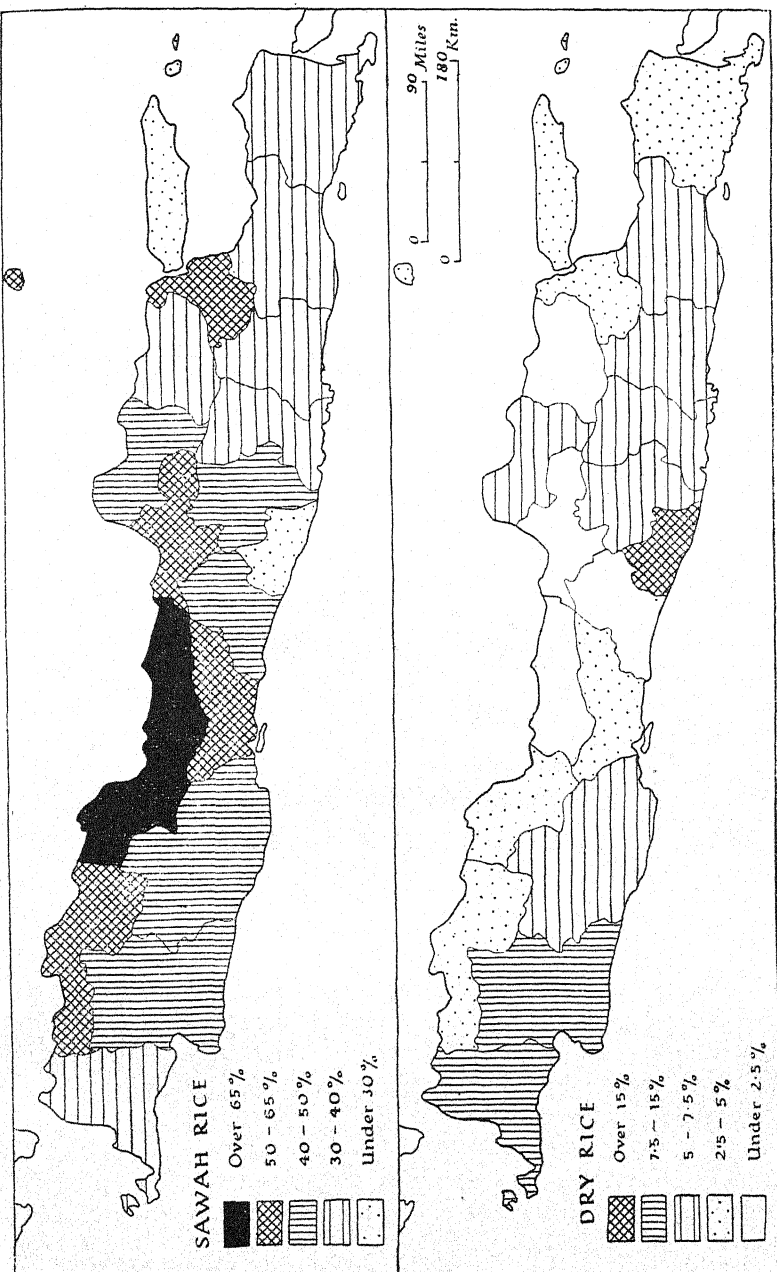


Fig. 33. Distribution of *sawah* rice and of dry rice in Java and Madoera
Source: *Indisch Verslag*, 1938, vol. II, pp. 240, 260 (Batavia, 1938).

but the actual planting is done by women. If the rain begins to decrease in March or April the crop may suffer from lack of water, hence better yields are usually obtained from irrigated fields than from those supplied by rainfall alone, especially in the drier eastern part of Java. The harvest is reaped by women and the reapers are paid by a share in the harvest, varying from one-tenth to one-fifth.



Fig. 34. Harvesting rice, Bali

Drawn from a photograph.

The harvest season and the following time when the rice is stamped or pounded is a period of rejoicing among the natives, during which feasts are held and marriages celebrated. After the rice has been stacked and dried it is threshed and then peeled or hulled in a mortar; finally the grain is separated from the bran by winnowing. The portion of the crop not needed for local consumption is generally sold to middlemen or brokers, who re-sell it to Chinese rice mills where the threshing, peeling and winnowing are done by machinery operated by water power or buffaloes.

Rice cultivation as carried out in Java is essentially a communal

activity, carried out by the *desa*, or village co-operatively. Thus, there are common seed beds and in many villages seed is lent to the cultivator from a common store.

Rice culture in the Netherlands Indies is entirely in native hands and is so closely bound up with the traditions and religion of the

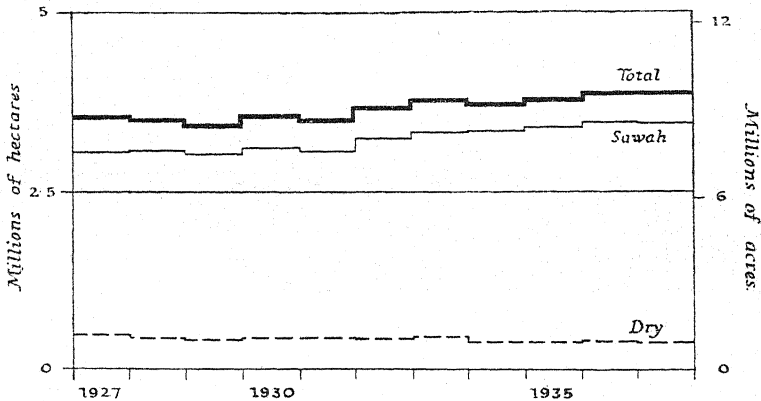


Fig. 35. Area under rice (sawah and dry)

Source: *Indisch Verslag*, 1938, vol. II, p. 265 (Batavia, 1938).

people that it has been difficult to persuade them to modernize their methods of cultivation. The government has, however, been untiring in its efforts to increase the yield of the rice fields by scientific research and by educating and assisting the cultivator in every possible way. Efforts have been made to make the natives abandon the traditional wet seed bed for the more efficient dry type. In some districts the native plough has been superseded by more modern implements.

Research has been carried out into the possibility of improving the yield by manuring. In ordinary native practice rice is not manured, except on very poor soils which may be given a dressing of dung or refuse. It has been found, however, that certain types of soil are deficient in phosphates and give a considerably higher yield when manured with superphosphate. It is estimated that there are over 2,500,000 acres of phosphate-deficient land in Java and over the whole of this area an average increase of 5.8 cwt. per acre could be obtained by using phosphate fertilizers. Other soils, for instance the sandy *gesik* soils and the younger volcanic soils, tend to be deficient in nitrogen and benefit from green manuring with leguminous crops. The difficulties in raising the rice yield by manuring are economic

rather than technical; the native lacks the capital to pay for fertilizers and the price of the crop is so low that their use is uneconomical unless the resulting increase of yield is large.

Pests and Diseases

Considerable losses to the rice crop are due to diseases and pests of various kinds. Birds and mammals—particularly field rats and rice birds—eat the grain. More important than these are various insect pests and the disease called root rot or *mentek*, which is not due to a parasite, but is physiological maladjustment prevalent under certain environmental conditions. The worst insect enemies of *sawah* rice are the white rice-borer (*Scirpophaga innotata*) and the rice bug (*Leptocorisia acuta*). Different pests attack 'dry' rice fields; the most serious in the lowlands is the white grub *Holotrichia helleri*.

These various pests are responsible for considerable fluctuations in rice production from year to year, but as they are mostly local in incidence in any given year, there is never a failure of the crop over the whole of Java, though there may be a failure over a whole district. Scientific work has shown that losses due to some of these pests can be much reduced by quite small changes in the usual methods of cultivation; for instance, with the white rice-borer it is sufficient to delay the date of sowing the crop. This insect remains dormant in the stubble for four to five months after the harvest; the adult moths emerge four to six weeks after the first shower of the west monsoon and emergence is complete within another fortnight. It is found that if the sowing of the rice is postponed till after all the moths have emerged, the crop will remain practically free of borer infection. In some districts the government has compelled the natives to delay sowing until tests with light traps have shown that nearly all the moths have emerged. This has proved to be an effective way of controlling the pest and only involves a delay of two or three weeks in the usual time of sowing.

Rice Breeding

Besides improving the methods of cultivation and controlling pests there is a possibility of increasing production by improving the rice plant itself, by means of breeding and selection. This has been one of the chief aims of the Experimental Station for Rice and Secondary Crops set up at Buitenzorg in 1905. For several reasons, the task has proved to be exceptionally difficult, but in recent years strains of rice have been obtained which yield up to 25% more than the unselected varieties ordinarily grown. Even when a good variety has been

successfully grown under experimental conditions there are all kinds of practical difficulties to be overcome before it can be spread over a large extent of country. As rice is a wind-pollinated plant it is impossible to keep a selected variety pure, because crossing with inferior varieties cannot be prevented. Further, the natives often fail to save any seed of the good varieties for next year's sowing, but eat or sell their whole crop, so that they are compelled to borrow or buy seed which may be of very poor quality.

Yield and Production

The average yield of rice per unit area in the Netherlands Indies

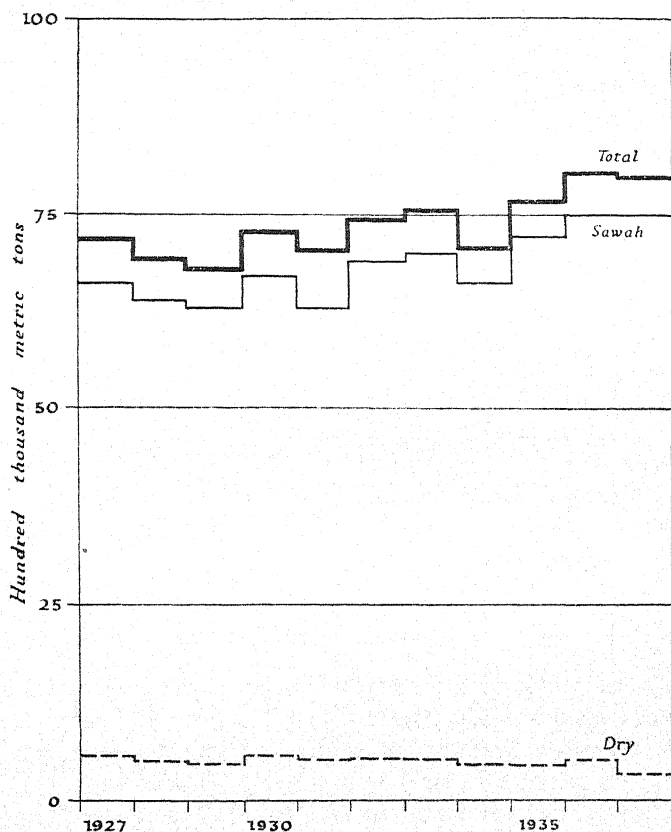


Fig. 36. Rice production

Source: M. B. Smits, 'Rice imports of the Netherlands Indies' *Proceedings of the 4th Pacific Science Congress, Batavia-Bandoeng, 1929*, vol. IV, pp. 236-37 (Batavia-Bandoeng, 1930).

compares favourably with that of most other rice-growing countries. About 17 cwt. of unhusked rice per acre may be taken as an average figure for Java and Madoera; only Italy and Japan can show higher figures than this. The yield shows large local variations and in Java both the lowest and the highest figures are found in the eastern part of the island. Particularly low yields are found in Madoera and in Rembang, eastern Semarang and other districts with a poor limestone soil. Higher yields than any of those in Java are found in parts of the Outer Provinces, as, for example, in Bali and the west coast of Sumatra. The total production of rice in the Netherlands Indies has fluctuated widely, depending on a large number of economic factors. In 1940 it was estimated at 13 million tons, of which 8 million came from Java. Before the depression of 1930-37 there was a tendency for rice cultivation to give place to the growing of crops for export, but when prices began to fall and crowds of labourers returned home from plantations abroad, the demand for rice grew. At the same time land formerly used for growing sugar became available for rice. The area of *sawah* rice in Java rose from 7,787,450 acres in 1929 to 8,989,900 acres in 1937 and the estimated production from 6.3 to 7.4 million tons. The changes in the area of rice cultivated and in the yield are shown in Fig. 35.

The Netherlands Indies both import and export rice, but the quantity imported greatly exceeds the quantity exported. Java rice, of which the best qualities are grown in the Indramajoe and Cheribon districts, commands a good price in the European market. The imported rice is of lower quality and comes chiefly from Siam, Indo-China and British India. In 1927 the excess of imports over exports of rice was 469,761 tons of clean rice, while by 1937 it had fallen to 100,889 tons.

SUGAR-CANE

Sugar-cane is one of the most important agricultural products of the Netherlands Indies. About 1.5 million tons are grown yearly, of which about 1.2 million are exported. Sugar forms about 8-10% of the country's exports and about 12-13% of world sugar exports. The sugar-cane is cultivated on a small scale by the natives throughout the East Indian islands, but on a commercial scale it is cultivated almost entirely on European-owned plantations in Java. The leading position which the Netherlands Indies have held among sugar-growing countries is due partly to the efficiency with which the

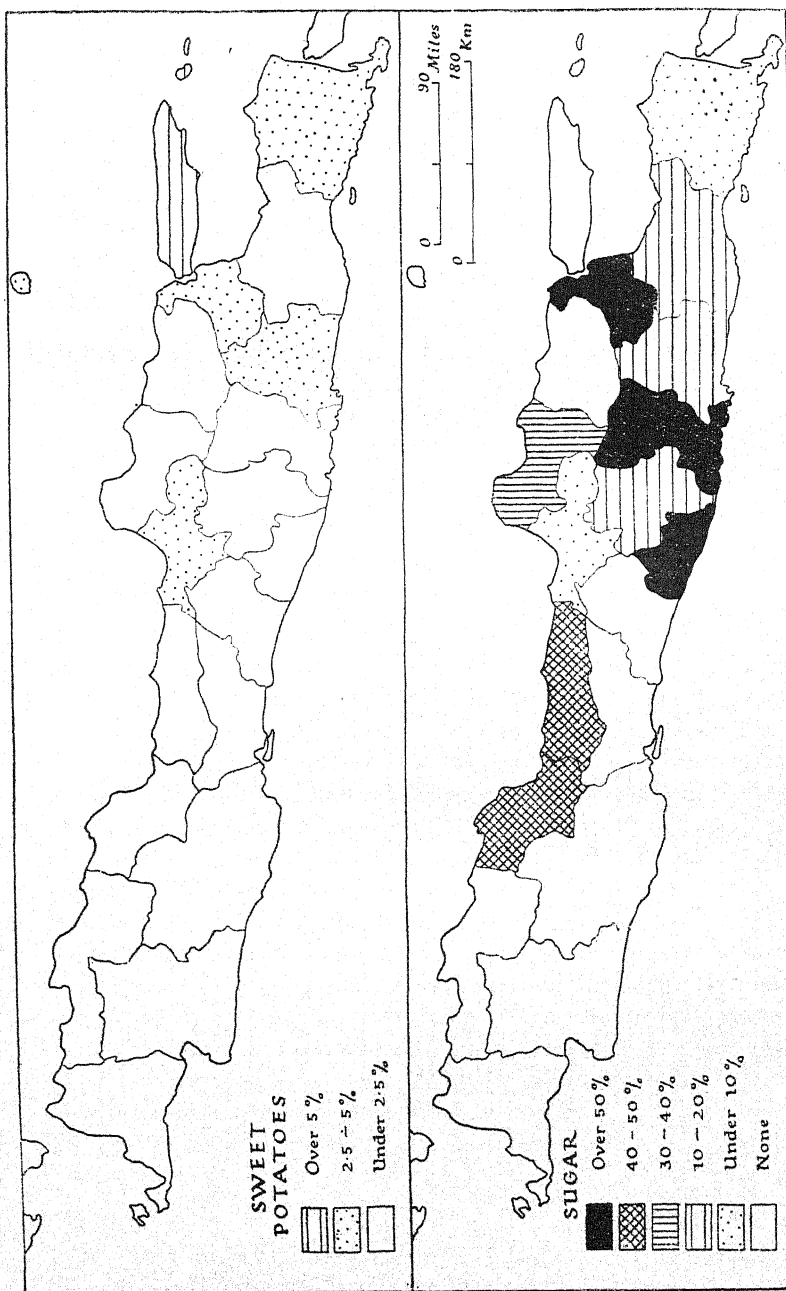


Fig. 37. Distribution of sugar-cane and sweet potatoes, Java and Madura
Source: *Indisch Verslag*, 1938, vol. II, pp. 240-260 (Batavia, 1938).

industry is organized and partly to the extent to which the results of scientific research have been utilized.

Cultivation

The successful cultivation of the sugar-cane demands a good water supply during the growing season and dry weather for the harvest. For this reason practically all the sugar estates of Java are concentrated in the lowlands of the east and centre of the island where the influence of the east monsoon is strongly felt. The greatest number of factories and the largest area under sugar are in Soerabaja Residency; the western limit of cultivation is approximately the Tjimanoeck. Over much of this area there are less than twenty days of rain in the four driest months of the year; very few estates lie in the region with over thirty rainy days in the dry season (Fig. 37).

Though the natives grow sugar-cane in small quantities both on 'dry' fields and *sawah*, large-scale cultivation is almost entirely on irrigated land. The ratoon system, under which the cane is cut down and a second crop allowed to sprout from the same roots, is unknown in Java, sugar being grown on a three-year rotation with rice and other crops, so that at any one time only about a third of the sugar-growing area is actually planted with cane. The land used is generally rented by the planters from the natives who, while cultivating sugar for the factories, continue to grow their own crops on the two-thirds of the land not being used for sugar. After the harvest the land returns to the natives and another third is rented by the planters (Plate 38).

Planting is done in the dry months between April and October, under European supervision. When the crop is ready to cut, about a year later, the natives harvest it and deliver it to the factories. As most of the sugar-growing districts are densely populated labour is plentiful. The men do the heavy work, the women cut the canes and do weeding and watering, while children are employed on catching insects and other light jobs. Before the slump in 1929 over 60,000 permanent hands were employed and over 700,000 temporary hands during the harvest or 'campaign'. The manufacturers pay wages for cultivation and additional wages for harvesting, as well as rent for the land. On a large estate the annual working expenses are about £ 3 million, of which the natives receive about £ 1 million in wages and £ 130,000 in rent.

Yield and Production

Before the slump in 1929 there were 179 sugar factories in Java, many of them with excellent modern equipment and highly expert

European staff. The number fell to 43 in 1935 but had risen again to 64 by 1937 (Plate 39). A network of light 'Decauville' railways connects the factories with the growing areas (see vol. I, p. 177, of this Handbook). There are two experimental stations for the sugar industry which deal with the diseases of the sugar cane (the chief being *sereh*, a disease of the vascular tissues, and *dongkellan* or root rot), with the breeding and selection of new varieties and with other problems of sugar cultivation. The large amount of attention given to research by the Java sugar manufacturers has been very fruitful in results; a measure of its success is the steadily rising figures of production per acre. In 1840 the average production was 15.8 cwt. per acre; in recent years it has been about 104 cwt. The famous variety known as 2878 POJ, raised by the Pasoeroean Experimental

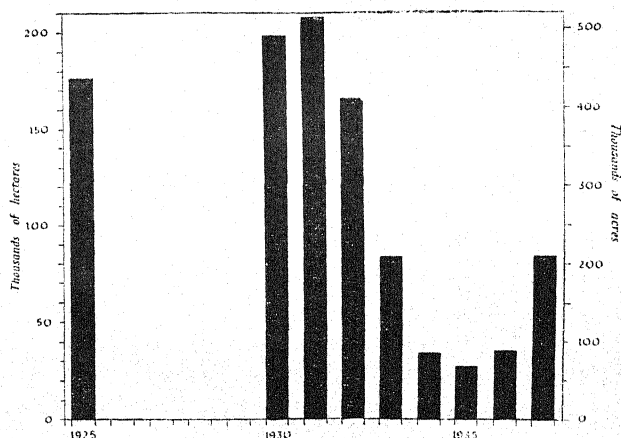


Fig. 38. Java and Madoera. Area under sugar, 1925-37

Source: *Indisch Verslag*, 1938, vol. II, p. 197 (Batavia, 1938).

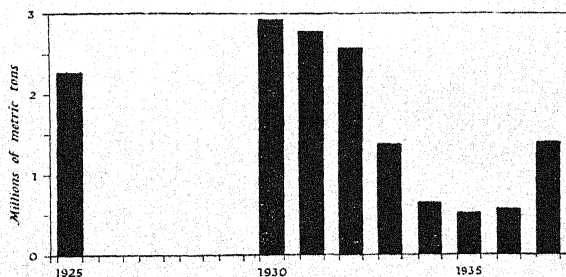


Fig. 39. Java and Madoera. Sugar production, 1925-37

Source: *Indisch Verslag*, 1938, vol. II, p. 197 (Batavia, 1938).

Station in 1926 has an average production as high as 128 cwt. The area under sugar-cane and the production of sugar from 1925-37 are shown in Figs. 38-9.

Organization

Since sugar was established as the main export crop of Java under the Culture System, the industry has had a chequered history. The financial crisis of 1884, due to an epidemic of *sereh* disease in the previous year, led to the adoption of a common policy among the sugar planters and to the establishment of experimental stations. A further crisis in 1895 led to the formation of the General Syndicate of Sugar Manufacturers which in 1912 took over the management of the experimental stations. The whole industry thus became in effect a single very large corporation. A further advance in organization was the creation in 1918 of the Association of Java Sugar Producers to act as a central sales organization. The world depression of 1930 hit the sugar industry extremely hard and the area cultivated fell from 697,670 acres in 1931 to 66,720 in 1935.

Up to 1874 Java sugar was exported almost entirely to the Netherlands, but later, owing to the development of the beet-sugar industry in the home country, exports became diverted to Great Britain, British India and other countries.

Palm Sugar

The natives eat little sugar-cane, but prefer sugar made by evaporating the sap of certain palms, in Java chiefly the *areng* (*Arenga saccharifera*), in the more eastern islands the *lontar* (*Borassus flabellifer*). The palm sugar is dried, wrapped in leaves and sold in the native markets.

RUBBER

Rubber is the most important of the industrial raw materials produced in the Netherlands Indies and one of the most important agricultural crops of the country. Before the Japanese invasion in 1942 some 1,729,700 acres of rubber were grown by the natives and some 1,482,600 acres by European planters (1,200 estates). There were 720,000 registered native rubber farmers and it was estimated that between five and six million people (native labourers and their families) depended on rubber for their cash income. The largest areas of rubber are in Java and Sumatra, but an increasing amount of rubber is being grown by the natives in Borneo and elsewhere. The



Plate 38. Sugar-cane ready for harvesting, central Java
The volcano G. Merapi can be seen through the clouds in the background.

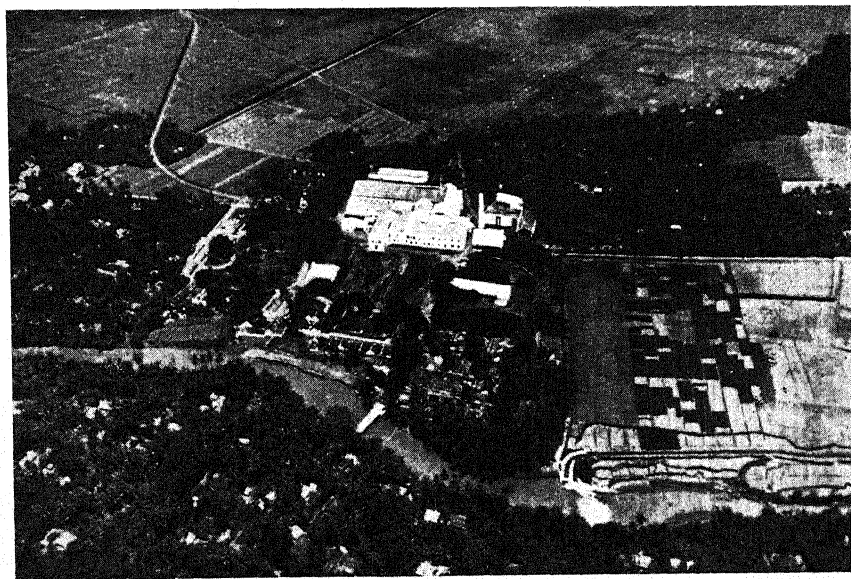


Plate 39. Sugar plantation and factory near Jogjakarta



Plate 40. Rubber plantation, Oostkust Residency of Sumatra

This plantation is in the lowlands between Tebingtinggi and Tandjoengbalai. The trees are six years old.

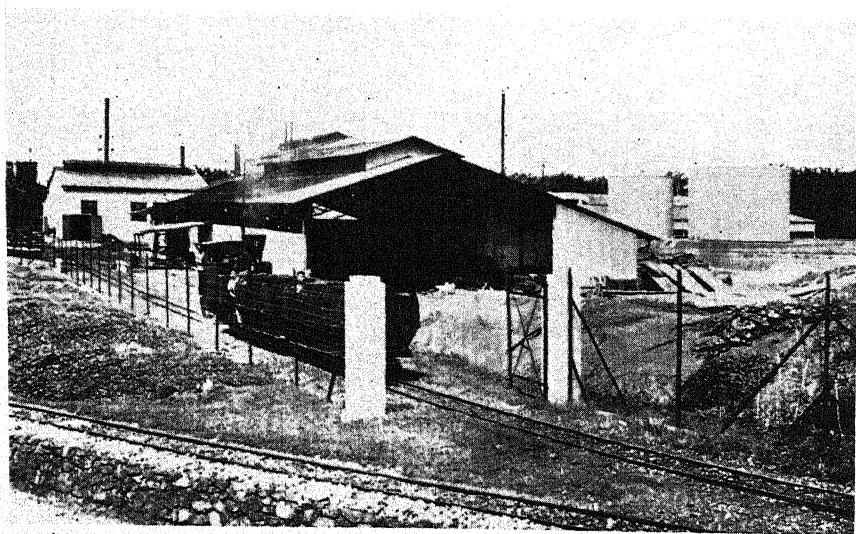


Plate 41. Palm oil factory near Pematangsiantar

rubber tree likes a hot climate; in Java most plantations are situated about 1,500 ft. above sea-level, rarely lower or higher, but in Sumatra, where rubber has not taken the place of any other crop but has been planted in clearings in the primitive forest, most of the plantations are at less than 1,500 ft.

In the latter part of the last century several plants such as the fig, *Ficus elastica*, and the ceara rubber, *Manihot glaziowii*, were tried in the Netherlands Indies as rubber producers, but these have been more or less completely superseded by the much more productive Para rubber, *Hevea brasiliensis*. This was first introduced into the Buitenzorg Botanical Garden in 1876 and the first plants were probably grown from the batch of seeds brought from Brazil to Kew by Henry Wickham, from which the first plantations in British Malaya also originated.

The rubber tree may grow to a height of over 60 ft. and the rubber is obtained from the trunk by making cuts in the bark (tapping). The latex, the milky juice which drips from the cuts, is collected and treated to make it coagulate. It is then made into sheets or lumps which are exported. Various systems of cultivation are practised; often a leguminous crop is grown under the trees as a green manure and ground cover. The natives often interplant the young rubber trees with a catch-crop while they are maturing. In the lowlands the tree takes four or five years, and in the hills a year or two longer, to reach a size at which it can be tapped. The highest yielding capacity is not reached till eight to fourteen years, but once reached it is maintained for many years.

Much experimental work has been done in Java with a view to selecting high yielding strains of rubber resistant to the various diseases by which it is attacked. As the tree is easily propagated by budding as well as by seed, there is a possibility of budding a strain on to a stock on which it may grow better than on its own roots. All such efforts at improvement are slow in giving results owing to the long time which must elapse before the performance of a tree can be judged, since it is impossible to distinguish low yielding from high yielding trees till they are old enough to be tapped.

Most of the rubber is prepared in the form of smoked sheets about 3 to 3½ mm. thick, but some of the older estates still keep to the old method of making pale crepe. Recently the Hopkinson spraying process has been introduced, but it can only be carried out on a very large scale and only two factories, one in Java and one in Sumatra, have adopted it.

From about 1905, when rubber first began to be extensively grown, till about 1915, rubber was grown only on European-owned estates, but the success of the early plantations encouraged the natives also to plant it. After the war of 1914-18, production greatly expanded and a great opportunity was given to planters and natives alike when in 1923 the Stevenson Restriction Scheme was introduced in Malaya, but not in the Netherlands Indies. During the economic crisis of 1930-37, however, the output was restricted in the Netherlands Indies also (see p. 313). In bad times many of the native rubber plantations are merely abandoned and, as the rubber tree is hardy and survives long periods of neglect, tapping can be resumed when prices again offer an inducement. The European estates on the other hand have heavy overhead charges and must carry on, even at a loss; it is doubtful whether their more scientific methods of cultivation are economically justified. For these reasons their share in rubber production seems likely to diminish and the industry may in time become an entirely native one.

VEGETABLE FATS AND OILS

The Netherlands Indies are large producers of vegetable fats and oils. The chief oil crops are the coconut and the African oil palm, while peanuts (groundnuts), soya beans, sesamum and kapok seeds are also grown.

Coconuts

The coconut palm is indispensable to the natives in innumerable ways, providing a range of commodities varying from cooking oil and fruit to thatch. In European commerce only two coconut products are of significance, copra, the dried 'meat' of the nut from which the oil is extracted, and the oil itself which is used in large quantities in various industries. World exports of copra amount to some two million tons and of these nearly a third comes from the Netherlands Indies.

The coconut palm does not require elaborate cultivation and is mainly a plant of coastal districts, preferring climates without a severe dry season. Nearly all the islands of the East Indies are fringed with a belt of coconut palms and in some places there are extensive plantations inland up to a height of about 2,300 ft. above sea-level. Coconuts are widely grown in Celebes, especially the Minahasa district, Borneo, the Atjeh and Oostkust districts of Sumatra and

in some of the smaller islands such as Talaud and the Anambas and Natoena islands, some of which are almost entirely covered with coconuts. Until recently coconut-growing was almost entirely a native industry, but the huge demand for copra has encouraged European planters to take up the cultivation on a large scale. Copra-drying is a simple process, carried out in the sun or over fires in drying sheds. The extraction of oil is carried out in factories, or by crude native methods. Spent copra or *boengkil*, from which the oil has been removed, is used as a cattle food.

Two experimental stations in the Netherlands Indies are concerned with the problems of coconut cultivation, but there is still a great lack of scientific knowledge as to diseases, varieties and the best methods of cultivation. Great differences in yield between different trees can be observed and rough methods of selection, such as buying seed from estates which are known to have a high average production, have long been practised. Scientific selection promises good results, but there are various difficulties, the chief being the long time (at least five years) the trees take to bear fruit.

Oil Palms

Oil palm cultivation in the Netherlands Indies has had an astonishingly rapid development. Though large-scale cultivation only began in 1911, the Netherlands Indies have become the largest producer of palm oil in the world, furnishing in recent years about 250,000 tons out of a total world production of 550,000 tons. Oil palms are not a native crop like the coconut, but are grown entirely on a large scale in plantations, the chief centres of production being in the Atjeh and Oostkust Residencies of Sumatra. The total area cultivated is about 123,550 acres. The variety mostly grown is the so-called Deli type, which is the progeny of seed imported from Réunion or Mauritius in 1848 by the Buitenzorg Botanical Garden. An experimental station is occupied with problems of breeding and selection. By skilful cultivation an average production of 1.19 to 1.39 tons of oil per acre has been achieved, which makes the oil cheap and well able to compete with other vegetable oils and fats. Palm oil is exported. The problem of transport was at first difficult, but it has been solved by the use of oil tankers (Plate 41).

Other Oil Crops

Except for kapok seeds, which come from a tree and are a by-product in the production of kapok fibre, the other oil crops, peanuts, sesamum and soya beans are all annual plants. The cultivation

of all of these crops is entirely in native hands. Peanuts are grown chiefly on the *sawah*, in rotation with rice, particularly in east Java (Fig. 41). Considerable quantities of the oil are exported, mainly for use in the manufacture of margarine. Improved rapidly maturing varieties have been introduced.

COFFEE

Coffee was introduced into Java as long ago as 1699 and during the eighteenth and most of the nineteenth century it was the chief export crop of the country, not taking second place to sugar till 1885. Since that year coffee cultivation has greatly declined, mainly owing to the exhaustion of suitable soils, and to the attacks of diseases which have made the yield uncertain. Other causes have been the fluctuation of the market and the competition of other countries, particularly Brazil. At the present time, however, considerable amounts of coffee are still grown, particularly in east Java, central Sumatra and Celebes. Under the Culture System, coffee became a government monopoly and cultivation directly by the government did not finally disappear till 1919. From 1880 onwards coffee growing was taken up more and more by private planters and in the last few years native-grown coffee has become increasingly important, especially in the Palembang Residency and other parts of Sumatra. Coffee growers now realize that the crop is a speculative one and generally combine it with the cultivation of tea, rubber, cinchona and other crops.

The only type of coffee grown in Java until the latter part of the last century was Arabian coffee, *Coffea arabica*. In 1876 a leaf disease, due to the rust fungus *Hemileia vastatrix*, was noticed in Sumatra and soon spread to Java. It is estimated that between 1884 and 1888 damage amounting to 100 million guilders was done and it soon became useless to grow coffee, except at high altitudes where the effects of the disease were less devastating. Great efforts were made, first by introducing new types of coffee from abroad, later by selection, grafting and hybridization, to find high yielding coffees which were resistant to disease. *Coffea liberica* was introduced from West Africa in 1876 and later *Coffea robusta* from the Congo. The first government experimental station for coffee was started in 1901 near Malang and afterwards several other stations were established by the government or by the planters themselves. The efforts to improve the coffee plant have not been entirely unsuccessful and at the present time a range of

types suited to different conditions are grown, *liberica* types on heavy soils and at low altitudes, *robusta* types on more porous soils particularly between 1,000 and 2,500 ft., *arabica* types on young volcanic soils at still higher altitudes. Besides the leaf disease, the coffee tree easily falls a victim to several other pests, of which the worst are nematode worms and since 1918 the boring beetle *Stephanoderes hampei*. In improvement experiments resistance to all these pests has to be taken into account.

TEA

Tea has long been grown in Java. Freed from government control in 1865, the tea industry soon made rapid progress. For some years it was mainly in British hands and it was to develop the tea plantations that foreign capital was first attracted to the Netherlands Indies on a considerable scale. When the coffee plantations were ruined by disease many Dutch planters took to growing tea in place of coffee. In the last few years the tea production of the Netherlands Indies has been about 85,000 tons per annum, 15 % of the total coming from native growers, who sell most of their product to the planters for processing in their large and well-equipped factories (Plate 42).

The tea tree or bush demands a soil rich in humus and a not very hot climate with a high rainfall throughout the year. These conditions are found in the mountains of west Java between 2,000 and 6,500 ft., particularly in the Preanger Highlands, and in the native principalities or *Vorstenlanden*. Trees taller than tea are grown in the plantations to give the necessary shade. Outside Java a thriving tea industry has grown up since 1911 in the Oostkust Residency of Sumatra; the neighbourhood of Pematangsiantar has become especially noted for its high productivity. The large amount of labour (mainly female) needed for the cultivation is easily obtained in the well-populated districts where tea is grown.

In the early days of tea growing in Java only China tea was planted, but since 1873 the large-leaved Assam tea has taken its place because of its higher productivity and greater popularity in foreign markets. Till recently all tea seed was imported from growers in India, but efforts have been made to produce seed locally. The government has considerably improved methods of cultivation and by selection is trying to develop superior varieties of high productivity and resistant to the two chief diseases, the Assam tea bug, *Helopeltis*, and the red rust, *Cephaleuros*.

TOBACCO

Tobacco has been one of the chief exports of the Netherlands Indies for over fifty years. It is the main source of income in certain districts and some 6,200 acres are used for cultivating it. Tobacco is both an estate and a native crop. The estates grow high-quality, high-priced products such as the famous Deli leaf, used for wrapping cigars and reputed to be the finest tobacco of its class in the world. The native product is much poorer in quality and the yield is lower. Most of the native tobacco crop is used to satisfy the large local demand for cigarettes; the remainder can compete in the world market only because its price is low.

The European tobacco estates are situated chiefly in the Deli district of Sumatra (see p. 61 and Figs. 33 and 35 of vol. 1 of this Handbook), and in the native states and the Besoeeki Residency in Java. The system of cultivation is different in these three areas. In the Deli district cultivation is extremely elaborate and much capital is invested in the industry. Planting is done on former forest land and the same piece of ground is planted with tobacco only once in eight years (Plate 43). In the native states of Jogjakarta and Soerakarta cultivation is also intensive, but less so than before the agrarian reforms of 1918 when labour was cheaper. Here the plant is chiefly grown on *sawah*. In the Besoeeki Residency the planters supply native cultivators with seedlings and then buy the product for processing, sorting and export. In this district 'dry' fields are used.

SPICES

Spices, which in the seventeenth and eighteenth centuries were the best known product of the East Indies, to-day play a very small part in their economy. The most important of these crops is pepper, of which about 20,000 tons are produced annually in the Netherlands Indies. Pepper is grown mainly by the natives and Chinese, but some comes from European estates. The chief centres of the industry are in Sumatra, Borneo, Billiton and Bangka. Cloves are still grown, mainly by natives, in the Moluccas, the original 'Spice Islands'. They are also grown to some extent in Sumatra. Though there is a great demand for cloves in Java for flavouring native cigarettes, it is cheaper to import them from Zanzibar than to use cloves from the Moluccas. Nutmegs are grown as an estate crop both in Banda, to which the industry formerly brought much wealth, and in Java. They are also grown by the natives in Sumatra and Celebes.

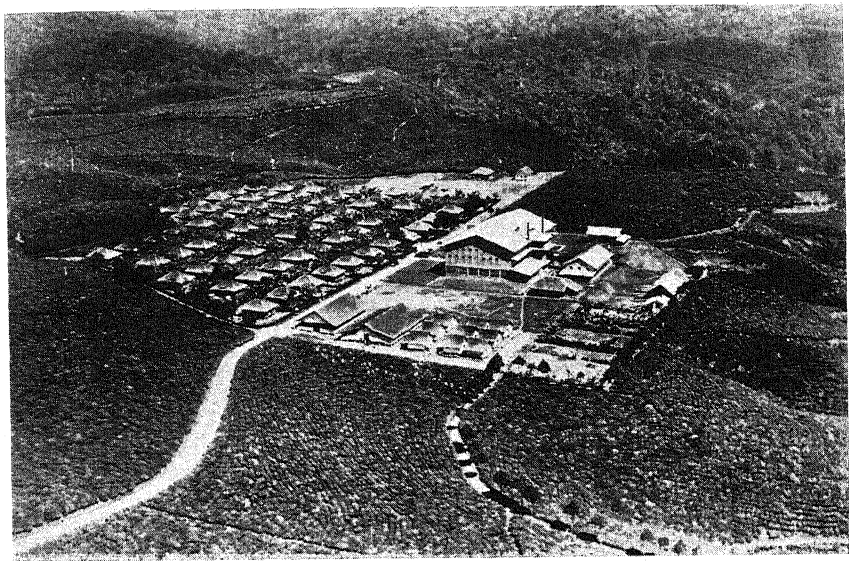


Plate 42. Tea plantation and factory, Poerbasari

The rows of buildings on the left of the factory are the houses of the workers on the plantation.

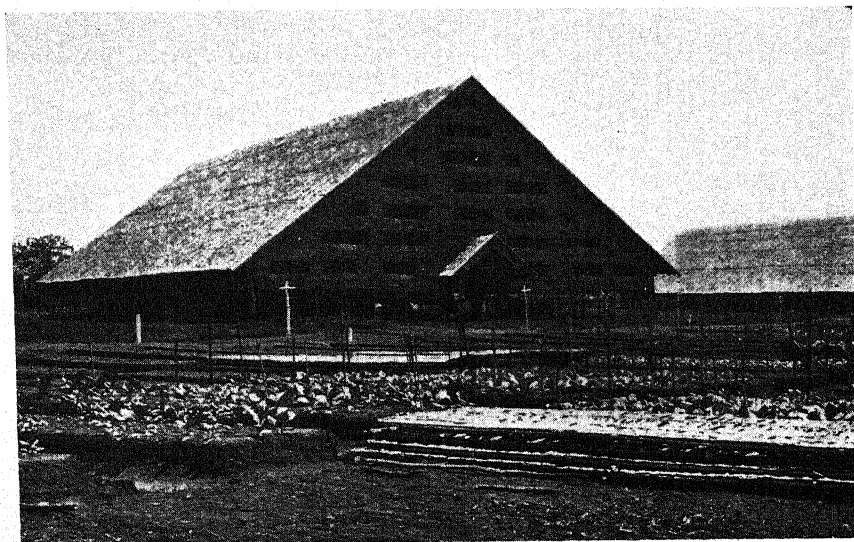


Plate 43. Tobacco plantation near Medan

Seed-beds can be seen in the foreground. The two large buildings are tobacco-drying sheds.

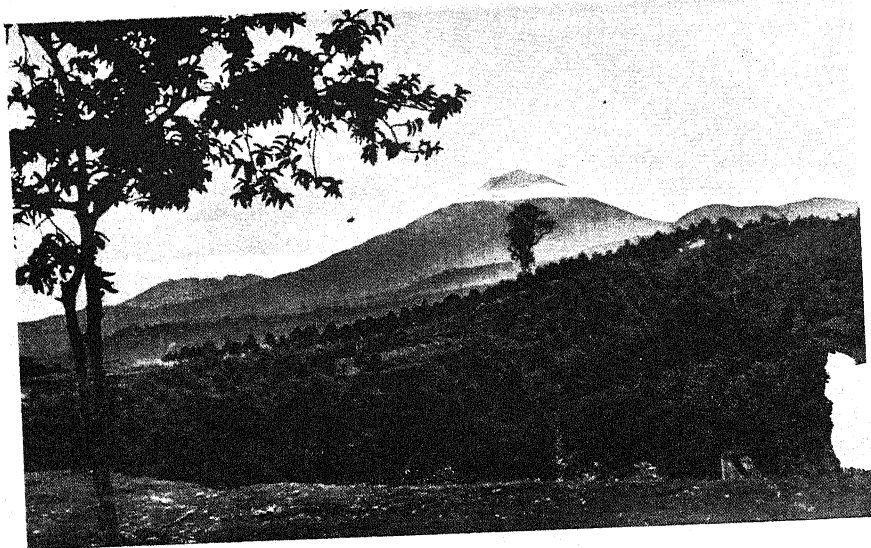


Plate 44. Cinchona plantation near Bandoeng

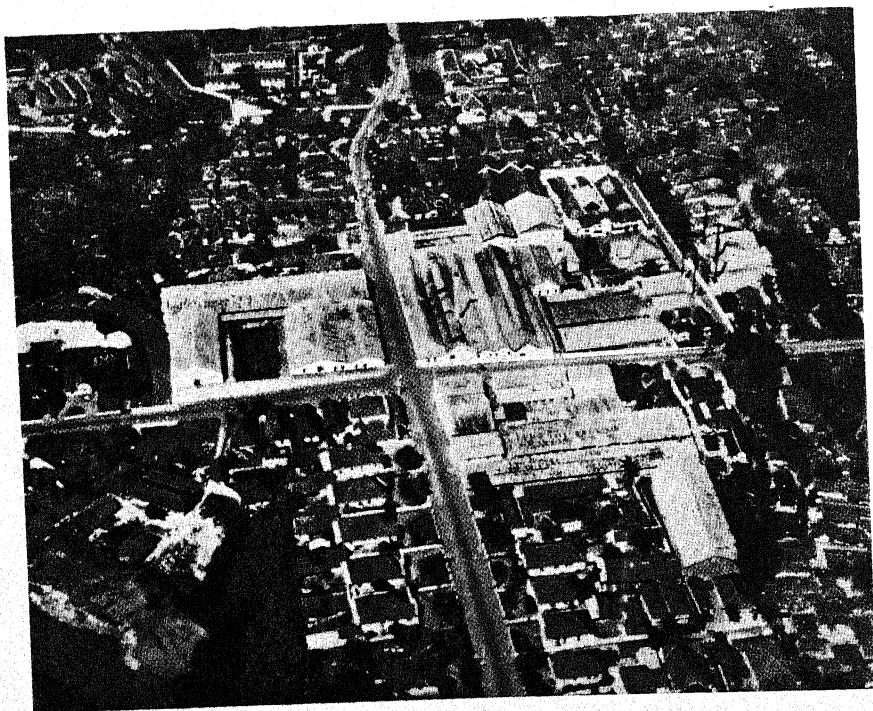


Plate 45. Cinchona factory, Bandoeng

Among the spices may be included the pinang or betel nut, the fruit of the areca palm, which is everywhere chewed by the natives in Malaya and the Malay islands. The tree is grown on a small scale almost everywhere in the Netherlands Indies and from Sumatra considerable quantities are exported, mainly to Penang and Singapore, where they are consumed locally and also re-exported.

FIBRES

The chief fibres grown in the Netherlands Indies are kapok, which is obtained from the fruits of the randoe tree, *Ceiba pentandra*, sisal and cantala, both obtained from the leaves of species of *Agave*, and gemutu, the fibres of the sugar palm, *Arenga saccharifera*.

Kapok

The most important of the fibres economically is kapok, which comes chiefly from Madoera, east and central Java, south Sumatra, Celebes, Bali and Lombok, and is mainly grown by the natives. Kapok is a light and elastic down, it does not easily deteriorate and is used mainly for stuffing 'eider-downs' and upholstery and for life-saving equipment for ships. Synthetic hollow fibres (the so-called 'bulb fill') can be produced which are adequate substitutes, but the cost of production is much higher than for the natural kapok. The Netherlands Indies produce about 20,000 tons of kapok a year, 70 to 80% of the total world's production. The seeds, as already mentioned, yield a valuable oil and the residue after the oil has been extracted can be used as a manure.

Sisal and Cantala

Sisal and cantala are hard fibres used for making ropes and cord. Both are grown in Java and Sumatra and the Netherlands Indies takes second place after the British East African territories as a producer of sisal. The exported sisal goes chiefly to the United States, where it is largely used for making binder twine for sheaves. The demand thus varies with the size of the grain harvest and the introduction of the combined harvester which reaps and threshes in one operation has tended to reduce the demand for sisal.

Other Fibres

Gemutu resembles bristles rather than fibres and is coming into demand for brushware.

Cotton is widely grown in the Netherlands Indies, but mainly for the home market, little being exported.

DRUG PLANTS

Cinchona

The cultivation of cinchona, the tree from whose bark quinine is obtained, occupies a unique place in the agriculture of the Netherlands Indies. Already in 1886 Java was producing about two-thirds of the world's supply of quinine bark and in recent years between 90 and 95 % of this drug, essential for the treatment of malaria, has come from the Netherlands Indies, the rest of the world's production coming from tropical America, the original home of the tree, and from British India.

The large share of the market for quinine captured by the Netherlands Indies is due, not to a monopoly of suitable soil or climate for growing the tree, but to careful organization, scientific methods of cultivation, and above all to long continued selection, which has made possible the production of bark with a very high quinine content and a low content of constituents which impede the extraction of the drug in a crystalline form.

The cinchona plantations are situated between 3,000 and 6,500 ft. above sea-level. In 1854 when the government, prompted by the increasing shortage of quinine, introduced the first cinchona plants into Java, the Pengalengan plateau near Bandoeng was chosen as the best site for the first plantation. After 1872, when a new and more productive type of tree was introduced, the cultivation was taken up by private planters as well as by the government, but this area has continued to be the main centre of production, though some cinchona is now grown on the west coast of Sumatra (Plate 44).

Till 1896 the bark was sold by public auction in the Netherlands and the extraction was carried out entirely by European manufacturers, but over-production and the formation of a 'ring' of manufacturers who combined to force down prices led to a crisis in the industry. As a counter-measure, a quinine factory was started at Bandoeng in 1898 and prosperity soon returned. In recent years production has been variable. In 1935 it was about 9,000 tons, in 1939 nearly 12,000 tons and in 1940 and 1941 it rose to 16,000 and 17,000 tons respectively (Plate 45).

Coca

Another important vegetable drug grown and manufactured in the Netherlands Indies is cocaine, which is extracted from the leaves of the shrub *Erythroxylon coca*. This grows well between 3,000 and 6,500 ft. in Java and is generally treated as a second crop or a catch

crop. The manufacture of the drug is carried out in factories both in Java and the Netherlands.

CASSAVA

Starchy foods other than cereals play a considerable part in native diet, as can be seen from the figures on p. 181; cassava, from which tapioca is obtained, is the chief of these foods and is also an important export crop. Cassava is grown chiefly in Java and Madoera and mainly by natives. It is cultivated both as a secondary crop on the *sawah* and on 'dry' fields. In 1937 it occupied about one-tenth of the total cultivated area and 7,637,400 tons of tubers were produced (Fig. 40). For many years the Dutch tried to encourage cassava cultivation, but with little success till about 1895 when the French began to buy cassava products for manufacturing cheap brandy. Later this practice was prohibited and the cultivation declined, but in recent years many new uses have been found for cassava and it has become an important export, the Netherlands Indies supplying from 70 to 85% of the world exports. In native housekeeping the tubers play a similar part to the potato among Europeans. Cassava flour is manufactured both in factories and by the natives; the refuse (*ampas*) is used as cattle food. As well as the flour, the dried tubers (*gaplek*) are exported and meal made from unpeeled tubers is used both as cattle food and for making alcohol. Tapioca starch has peculiar properties and recently a number of important industrial uses have been found for it, such as in the making of mucilages and adhesives, in the sizing of textile yarns and in paper manufacture. For some of these purposes no equally cheap substitute is available.

MISCELLANEOUS CROPS

Maize and Millet

The only cereals of any importance other than rice are maize and millet. Large quantities of maize are eaten by the natives and there is a surplus which is exported. In Java and Madoera maize cultivation occupies about a quarter of the area under native cultivation (Fig. 40). Maize is also grown in Sumatra and Celebes, and in Timor it is the staple food crop. Millet is widely grown as a subsidiary crop and locally, where conditions are unsuitable for both rice and maize, it is a staple food.

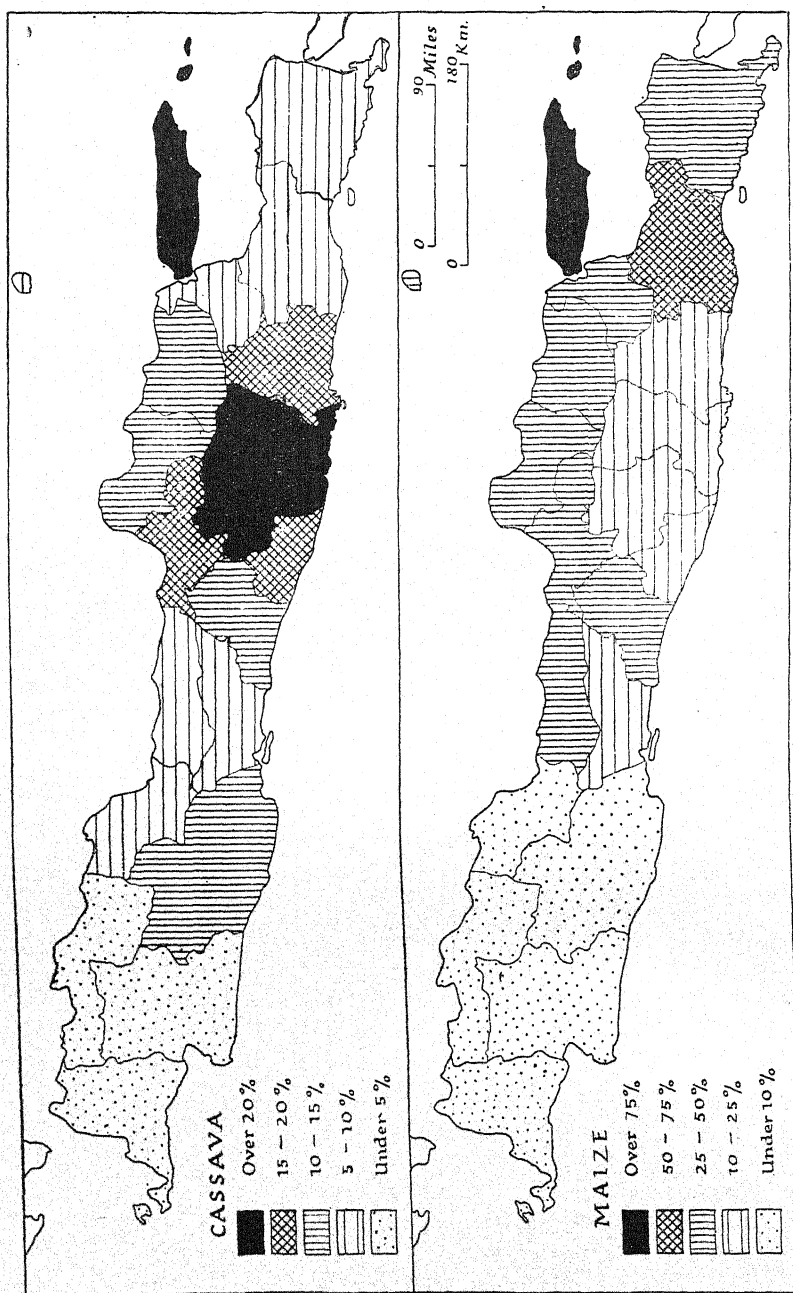


Fig. 40. Distribution of maize and cassava, Java and Madoera
 Source: *Indisch Verslag*, 1938, vol. II, p. 240 (Batavia, 1938).

Potatoes and Sago

English potatoes are grown by the natives in Java on a fairly large scale for European consumption; sweet potatoes on the other hand are grown all over the Netherlands Indies and are eaten mainly by the natives themselves. Sago is obtained from the stems of palms (*Metroxylon*) which grow wild, or are cultivated in a rough and ready fashion in most of the islands. In the Moluccas and in parts of New Guinea sago takes the place of rice as the staple food of the natives.

Cocoa

Cocoa has been cultivated in Java on a commercial scale since the latter half of the eighteenth century. At the present day it is grown chiefly in central Java; some of the land formerly used for it is now given over to rubber and other crops. The tree is somewhat exacting and subject to various serious diseases, but the product is of high quality and fetches a good price.

Pulses

The most important of the pulses is the soya bean or *kedele*, which has already been mentioned as a source of oil. It is chiefly grown on *sawah* in rotation with rice. The area under this crop rose in 1937 to 1,225,300 acres (Fig. 41).

Indigo

Indigo as a crop is now of historical interest only. Under the Culture System, indigo cultivation was one of the most laborious tasks imposed on the natives; later, indigo was largely grown on private estates. Synthetic indigo was discovered in 1875 and became a commercial product about 1896. After that date, indigo exports from the Netherlands Indies rapidly declined and now synthetic indigo is imported even for local use.

Essential Oils

Essential oils are exports of some importance. Among a number of such oils produced in the Netherlands Indies the chief is citronella oil which is obtained from the *sereh* grass (*Cymbopogon nardus*). The production of this oil, used as a perfume for soap and in manufacturing synthetic 'attar of roses', has been recently about 2,500 tons a year. *Sereh* grass is grown chiefly in west Java, mostly on small plantations in mixture with other crops.

Gambir

Gambir or white cutch is a scrambling plant which is extensively

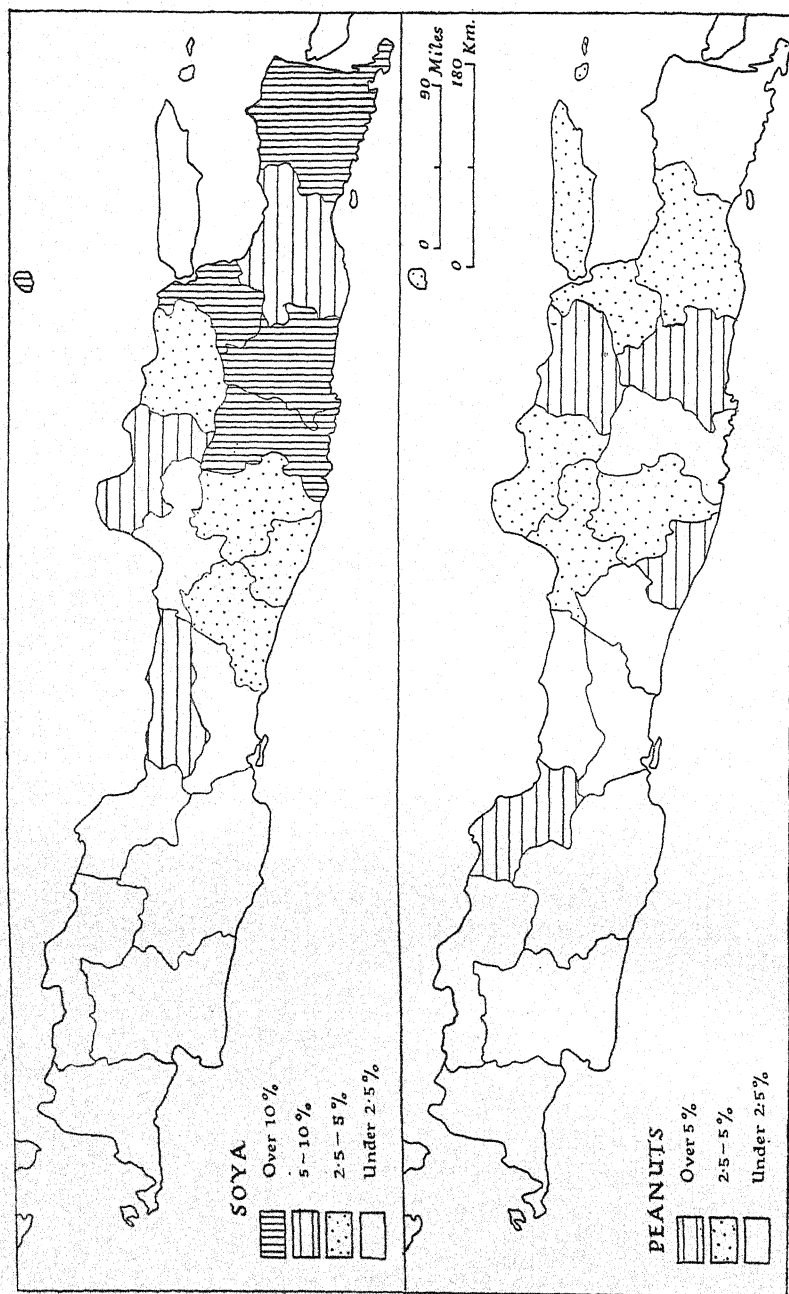


Fig. 41. Distribution of peanuts and soya beans, Java and Madiera
Source: *Indisch Verleg*, 1938, vol. II, pp. 249, 260 (Batavia, 1938).

cultivated in Sumatra, Riouw and west Borneo; it also grows semi-wild in some places. It is used as an astringent to chew with betel nut and yields a brown dye, but its main importance is as a source of tanning material, of which large quantities are exported to Europe.

LIVESTOCK

After crop-growing the rearing of livestock is one of the chief means of livelihood of the native population, particularly in certain districts. The cattle are used mainly as draught animals, either in the fields or for road transport, meat production being of secondary importance. Milk is used only by Europeans and dairying is little practised. The competition of the motor-car has led to some diminution in the demand for draught cattle; on the other hand, the extension of the road system into the interior of most of the islands has widened the area in which they can be used. To the natives, cattle are valuable not only for their usefulness as such, but also as an investment for savings. Cattle are considered a safe possession and can easily be converted into cash when the need arises.

CATTLE

Cattle are very unevenly distributed over the islands, as the following figures (for 1937) show:

Islands	Oxen	Buffaloes	Total
Java and Madoera	3,537,106	2,015,771	5,552,877
Sumatra	353,077	365,500	718,577
Borneo	27,693	34,894	62,587
Celebes and Moluccas	135,510	407,245	542,755
Lesser Soenda islands	360,220	373,944	734,164
Total	4,413,606	3,197,354	7,610,960

Source: *Indisch Verslag*, 1938, vol. II, p. 277 (Batavia, 1938).

The greatest density of cattle is in Java (116 per sq. mile) and Madoera (311 per sq. mile). On the small island of Sapoedi, off the coast of Madoera, it is as much as 453 per sq. mile. In some districts of the Netherlands Indies the density thus equals or exceeds that in the richest cattle breeding regions of Europe.

Buffaloes are more powerful than oxen, but less capable of prolonged effort and less tolerant of the midday sun; they are

particularly useful for hauling timber and for cultivating marshy ground, but for permanent cultivation on the lighter soils they are gradually being displaced by oxen. The increasing use of oxen is especially noticeable in Java, though even here buffaloes still predominate in the west, whereas in the rice-growing plains of the east oxen are far more numerous. In Madoera, where the people specialize in cattle breeding, oxen outnumber the buffaloes still more. In the Outer Provinces, where cultivation is backward, there are more buffaloes than oxen, except in a few areas, such as the Atjeh Residency in Sumatra, the Minahasa district near Manado in Celebes, and Bali. In Borneo, cattle of all kinds are little used; there are only 0.3 per sq. mile.

Both oxen and buffaloes are bred. Ordinarily cattle breeding is a secondary occupation subsidiary to other forms of agriculture, but in the Bantam and south Preanger districts of Java herds of 40 to 100 buffaloes may be seen and near the large towns there are herds of cows. In cultivated areas one man rarely owns more than half a dozen cattle and sometimes only one or two. Many European plantations keep their own buffaloes for haulage; in Deli (Sumatra) every plantation has its own herd, imported originally from India, and it was to meet the European's demand for milk that cattle were first imported from abroad. When the Agricultural Department was formed in 1905 the experience gained by the planters was at its disposal.

Most of the oxen in Java derive originally from the banteng (*Bos sondaicus*) which is still found wild in places from Bantam to Besoeki; there are also wild oxen in Borneo, probably the descendants of Bali cattle which have run wild, and a type of dwarf wild ox in Celebes. Among the domesticated cattle those of Bali are a distinct type closely related to the banteng; all the others are grouped together as Javanese with three recognized varieties, the true Javanese, the Sumatran and the Madoerese. All the cattle have been largely crossed, especially in recent years, with imported animals, chiefly from British India.

Before the formation of the Agricultural Department little had been done, except by the planters, to improve the local stock. The cattle had been left to run wild over the extensive grazing grounds, but with the spread of cultivation in Java stall feeding had to be adopted, though breeding was still left to nature. There was, moreover, a Muslim prejudice against castration, though in Hindu Bali castration had long been a common practice. The first attempt by the government to improve the stock was the importation of Zebu cattle from

British India in 1907. Since then the veterinary service, in co-operation with the administrative service, has applied 'gentle pressure' to encourage selective breeding. Many villages have been induced to purchase stud bulls and to castrate inferior stock, though the less docile Madoerese have sometimes slaughtered their cattle rather than castrate them. Active encouragement has been given to cattle shows and in Madoera to the local passion for cattle racing.

One of the chief activities of the Veterinary Service, which is staffed by European Veterinary surgeons with native assistants, is to combat cattle diseases. With this object regulations prohibiting the import of certain types of cattle from abroad have been introduced and supervision has been exercised over the cattle markets. Research work on animal diseases is carried out at the Institute for Veterinary Research at Buitenzorg (Java) and large quantities of vaccines and sera have been supplied to breeders. Though many cattle diseases are still prevalent, the general health of the stock has been much improved and is on the whole very good.

The chief centres of the cattle trade are Madoera and Bali, which export annually for slaughter some 60,000 and 25,000 animals respectively, as well as others for use in agriculture. Since 1913 bulls have been imported by the government into Soemba where cattle breeding has taken root, and Javanese colonists, who have settled under government supervision in the Lampoeng district of Sumatra and elsewhere, have been assisted with imported cattle.

OTHER LIVESTOCK

Horses

The chief centres for the breeding of horses (or rather ponies) are Soemba and Soembawa. From Soemba comes the well-known 'sandalwood' pony. These animals are bred on the dry grassy plateaux of central and east Soemba, where they are left in complete liberty; although the largest horse in the Netherlands Indies, the 'sandalwood' stands but little over twelve hands. Until recently every European official and planter had his team of 'sandalwoods', but their place has now been taken by the motor-car. In Soembawa there are two breeds, the true Soembawa, which is the better for draught, and the Bimanese, a taller but less sturdy horse which is used chiefly for riding. Australian and Arab horses have been imported.

Goats

Goat breeding is general in Java and the veterinary service has done much to improve the breed by importing goats from the Netherlands. Many villages in the Netherlands Indies now possess a communal stud goat.

Pigs

Pig rearing is an industry of some importance, especially in Bali and Lombok. In Java pig breeding is carried on only by the Chinese as the Javanese have the Muslim prejudice against pork. Elsewhere pig breeding is general among non-Muslim races, as among the Dyak of Borneo and the Batak in Sumatra. In Medan (Sumatra) and Buitenzorg (Java) there are pig breeding stations where the local stock is crossed with boars imported from Indo-China and Yorkshire.

HORTICULTURE

Every native house in the East Indies has its garden and in these native gardens an astonishingly large variety of fruit and vegetables is grown. Among the common fruits may be mentioned the citrus fruits—orange, lime, grapefruit and pomelo or pampelmousse—the pineapple, or ananas, the mango, the banana or pisang, the melon, pumpkin, guava, papaw or papaya, the breadfruit, custard apple, sour-sop, sweet-sop, rambutan, durian and mangosteen. A few coconut palms are grown in every native garden. Vegetables include many kinds of green vegetables and beans, as well as yams, sweet and English potatoes, and cassava. Though all these fruits and vegetables are grown mostly for home consumption or for sale in the nearest market town, the total amount of produce grown in gardens is considerable. It is estimated that in Java and Madoera gardens cover an area of 2.6 million acres. The amount of fruit produced can be estimated from the statement that in 1927, 66,414 tons of fruit were carried on the Java State Railways; at least as much again must have reached the markets in other ways, generally by lorry or carried by the cultivator himself on carrying poles.

The only horticultural product which is exported in large quantities is bananas in which there is a considerable trade with Australia. Exports amounted to 148,000 bunches in 1928. Attempts have been made with some success in recent years to develop an export of tropical fruits to the Netherlands. The cultivation of European vegetables such as cabbages for sale to Dutch residents has become

an important local industry, for instance on the Batak plateau in Sumatra, where vegetables are grown for sale in Medan.

The government has done much to encourage native horticulture by supplying the cultivator with expert advice and by establishing experimental stations for the investigation of garden pests and other problems.

DISTRIBUTION OF CROPS AND LIVESTOCK

Figures for cropped areas are available only for Java, Madoera, Bali and Lombok, as the Outer Territories in general are not surveyed for land revenue, but a useful index of the chief crops of each area is given by the statistics for agricultural exports from the various ports, the crops exported usually coming from the immediate hinterland.

JAVA AND MADOERA

The outstanding features of the agriculture of Java and Madoera are the intensive cultivation of a great variety of crops both for subsistence and export and the large area used for cultivating rice on the *sawah* system. Besides food crops tobacco, rubber and many other crops are grown. As well as native agriculture, European plantations run on capitalist lines contribute a large share to the enormous agricultural production of the island. There is little or no *ladang* cultivation, almost all the agriculture being permanent, as might be expected from the high density of the population. Except in the west, much of the land is cropped twice in the same year; in Madoera the cropped area exceeds the arable area by more than 50% and in the Semarang and Malang regions the proportion of double-cropping is nearly as high.

There is a marked difference in climate between Madoera and east Java, which have a low annual rainfall with several consecutive months of almost complete drought in the east monsoon, and west Java, which has a higher rainfall much more evenly distributed through the year. On this difference of climate depends a difference in the crops grown, some crops, e.g. tea, being better suited to the damper western climate, others such as sugar-cane, preferring the regions with a marked seasonal drought (Fig. 42).

The main rice-growing area (Fig. 65 in vol. I of this Handbook) forms a belt along the northern coastal plain from Batavia eastwards, broken in the Krawang-Indramajoe district and by the low teak-covered

hills of Rembang. In some parts, especially near Soerabaja, the rice belt widens towards the south, but only in the middle of the island is there any considerable stretch of rice land near the southern coast. In some districts rice gives place to other food crops; thus in

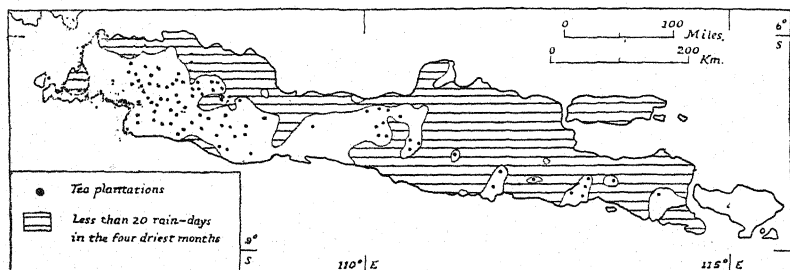


Fig. 42. The distribution of tea plantations in relation to the number of rain-days
Source: *Atlas van Tropisch Nederland*, plate 7 (Batavia, 1938).

Madoera the area under cassava is twice, and that under maize about six times, that under rice. Maize covers large areas from Semarang and Kedoe eastwards and in the Residencies of Bodjonegoro, Malang, Besoekei and Madoera is more widely grown than rice. Cassava is grown as a supplementary food crop and in some areas takes the place of rice. In the west it is little grown except in the Preanger Residency, one of the largest centres of cassava cultivation, but it is widely distributed over central and east Java and is of especial importance in the native state of Soerakarta and in the Residencies of Bodjonegoro Madioen, Kediri and Madoera. Other food crops, such as soya beans and peanuts, are widely but unevenly distributed. Little or no soya beans are grown in Madoera.

Before the economic crisis of 1929 sugar was by far the most valuable plantation crop in Java. From Cheribon eastwards it was grown on most village rice land, except where the water supply was insufficient. The distribution of the other chief plantation crops, rubber, coffee, tea and tobacco, has already been indicated.

SUMATRA AND DEPENDENCIES

In Sumatra and its dependencies the status and character of the agriculture contrasts in several respects with conditions in Java. Sumatra is much less densely populated than Java and there is not the same necessity for extracting the maximum yield from every

available acre of land. There is, moreover, much less fertile soil. Crops other than food crops are relatively more important and large areas are cultivated by primitive and inefficient native methods or still have their original covering of primeval forest.

Rubber is the only important native crop in most of Sumatra, though in the densely populated Padang Highlands native agriculture is of some commercial importance. Rice is the chief food crop, but until recently not enough was produced to meet the local demand and a large quantity was imported annually, much of it to feed the coolie population of the Oostkust estates. Since the 1930 depression, however, the coolie population has diminished, more land has been given over to rice and in Atjeh and the Lampoeng districts a surplus has been available for export. In the west of the Djambi Residency, in the adjacent Kerintji and other parts of the Westkust Residency rice is grown on the *sawah* system, but elsewhere it is chiefly grown by the 'dry' method on temporary clearings (*ladang*). Maize is the food crop second in importance to rice.

Other crops grown by the natives include rubber, tobacco, coffee, tea, kapok, coconuts and pepper. Gambir, used as a medicine and in dyeing and tanning, is cultivated, especially in the Residency of Riouw and Dependencies. Betel nuts are grown everywhere about the villages and are also cultivated for export in the north-east of Atjeh. Of all these crops rubber is by far the most important. Since its beginning about 1915, native rubber production has expanded enormously and just before the 1930 depression, Sumatra was exporting about 67,000 tons of native-grown rubber annually. Most of this came from the Djambi Residency (22,000 tons) and the Palembang Residency (16,000 tons), but some from the Residency of Riouw and Dependencies (8,000 tons) and the Oostkust Residency (14,000 tons), while rubber cultivation was beginning to spread also in the Tapanoeli Residency. Further growth of the industry was checked by the depression, until a new stimulus was given by the keen demand in 1937.

The most characteristic feature of Sumatran agriculture is the great part played in it by plantations under European management. This type of agriculture, in which much capital is invested, is chiefly concentrated in the Oostkust Residency, where it began in 1863 when the ruler of Deli granted a concession for tobacco cultivation. The soil of Deli proved exceptionally suitable for the production of high-quality wrapper-leaf and by 1937 there were forty-seven tobacco plantations in the Deli district, with a total area of 32,120

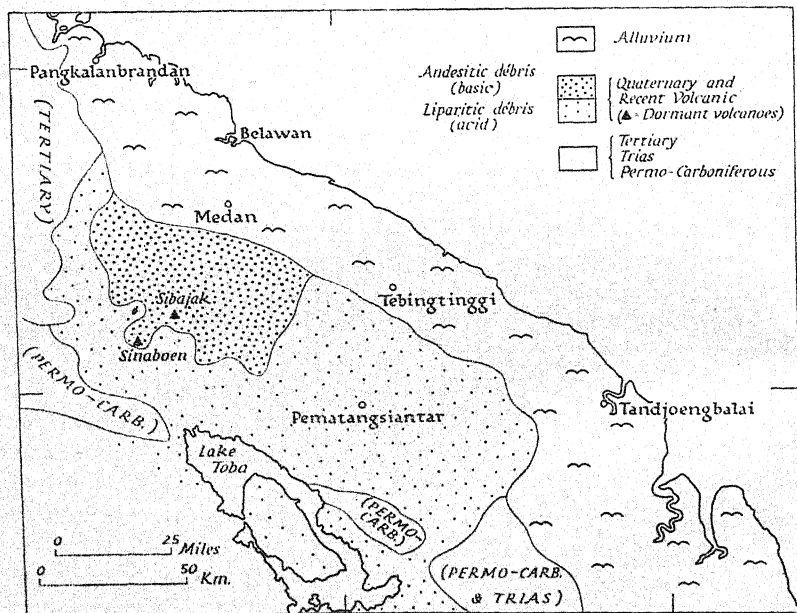
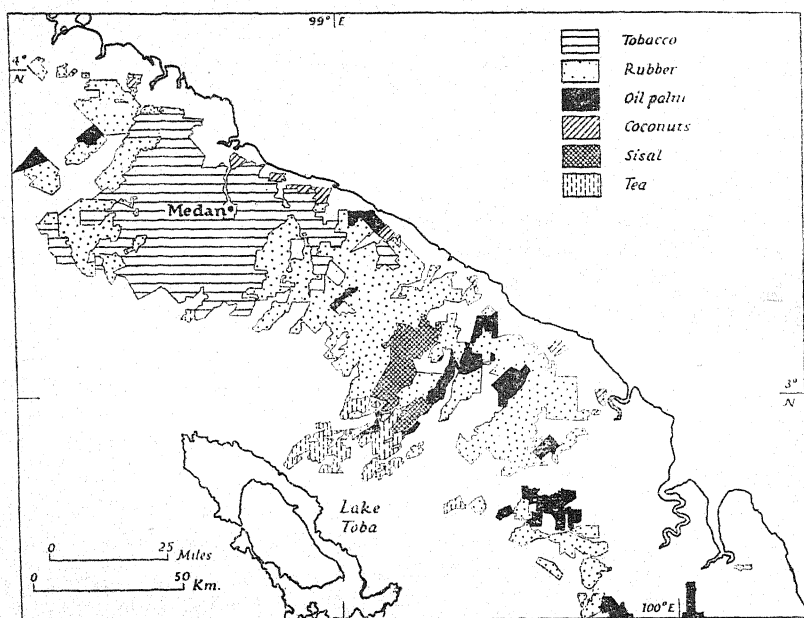


Fig. 43. The plantation area (*cultuurgebied*) of the Oostkust Residency of Sumatra
Source: *Atlas van Tropisch Nederland*, plate 12 (Batavia, 1938).

acres. The rubber estates, some of which are financed by British capital, are now far more important than the much older tobacco industry. There is a block of rubber estates north-west of the tobacco-growing district and another, much larger, stretching away to the south-east, but rubber growing, unlike most of the other plantation industries, is by no means confined to the Oostkust Residency. Other important estate products of Sumatra are palm oil (grown mainly in the same districts as rubber), tea (grown especially in the highly productive estates about Pematangsiantar), coffee and sisal.

BORNEO

In spite of its vast size, Borneo is of very little agricultural importance. The soil is much less fertile than that of Java, because of the absence of volcanoes, and the native peoples do not make good cultivators. Minerals, particularly oil, and forest products, such as rattans, wild sago and beeswax, contribute far more to the wealth of the country than do the agricultural crops.

The Dyak cultivate rice and small quantities of maize, cassava and other food crops on *ladang* in the dense forests which still cover most of the interior of the island. So inefficient are their methods, however, that not nearly enough food is produced to feed the population and much rice has to be imported. A little tobacco is grown for local consumption. The Malays who inhabit the coastal regions are in general no better cultivators than the Dyak, but in some places there are embanked rice *sawah*, especially where there is a Javanese strain in the population. Considerable quantities of pepper are produced in Poelau Laoet, on the adjacent mainland and in several other districts. Betel is grown for export in west Borneo and coconuts are of increasing commercial importance, especially around Pontianak and Bandjermasin.

In Borneo, as in Java and Sumatra, the outstanding feature of native agriculture is the rapid progress of rubber cultivation. In 1929, just before the depression, the yearly output exceeded 40,000 tons and later, after a temporary set-back, the industry responded to a renewed rise of prices.

CELEBES

Agriculture in Celebes is even more backward than in Borneo and the people have not yet taken to rubber planting on a considerable

scale. Rice and maize are cultivated on *ladang* and some maize is exported. Near the coast in some districts rice is grown in *sawah*. Coconuts are grown on a large scale, particularly in the Minahasa district, and both the nuts and copra are exported. Coffee is cultivated in some districts and kapok is produced both south of Makassar and on the island of Moena. Capitalist enterprise is unimportant.

MOLUCCAS

Though the Moluccas, because of their spices, were the first of the Netherlands Indies to become commercially important, their agricultural production to-day is insignificant. Unlike most other parts of the East Indies, the chief food plant in the Moluccas, except in the Oelissers, is the sago palm which grows wild and is also cultivated in a haphazard fashion. Nutmegs are still widely grown, but cloves are practically confined to Amboina and the Oelissers. The cultivation of coconuts and the preparation of copra are now the chief native occupations. The nutmeg groves, no longer of much importance, are the only form of European agricultural enterprise.

LESSER SOENDA ISLANDS

In these islands the climate becomes progressively drier from west to east and, except in Bali and Lombok, which have excellent native irrigation systems (see p. 176), lack of water limits the development of agriculture. In Bali and Lombok native agriculture is elaborately organized and reaches a high standard, higher even than in Java. In both islands there are about 222,400 acres of irrigated rice *sawah* and Bali has in addition about 120,000 acres of maize. Other crops are sweet potatoes, coffee, coconuts and tobacco. In the other islands from Soembawa to Timor the breeding of cattle and horses is an important industry, but the soil is poor and other forms of agriculture are very primitive. In general maize is the chief food crop, but rice is grown in some parts of Soemba and Soembawa. Along the coasts the people grow coconuts and prepare copra.

AGRICULTURAL POLICY

THE CULTURE SYSTEM

Though large-scale capitalist enterprise plays a very important part in the agriculture of the Netherlands Indies, especially in Java and

Sumatra, in recent years the agricultural policy of the government has aimed primarily at the assistance and improvement of native cultivation and the protection of the rights of the economically weak native against encroachment. To this end an elaborate system of laws and regulations has been built up, which is largely responsible for the comparatively favourable economic situation of the native people. In order to understand the present organization of agriculture in the Netherlands Indies, which involves a careful balancing of the claims of the native cultivator and the European planter, it is necessary to understand the most important event in its past history, the episode of the Culture System (*Cultuurstelsel*).

This system was the work of Governor-General Van den Bosch, who took office in 1830. Previously, under the Dutch East India Company, attempts, mostly ill-judged, had been made to encourage and control the output of spices, sugar and coffee, but an export of agricultural products on a large scale had not developed. The main object of the Culture System was that the Indies should bring a profit and not a loss to the home government; its essential feature was that the natives were compelled to give a proportion of their land and labour, without payment, for the cultivation under European supervision of export crops such as sugar, coffee and indigo. The produce was sold in the Netherlands for the benefit of the government. The system was only applied in Java and at its height it affected only 5% of the cultivated area. It soon achieved its purpose of providing the home government with a large revenue surplus and to some extent it promoted the economic development of the natives, disciplining them in the methods of intensive agriculture and leading to a large increase in the population. It became repugnant to the liberal spirit of the later nineteenth century and soon began to lead to evils and abuses; it also came into collision with village customs governing land tenure. The increasing need of the home government for money, together with the rapacity of officials, both European and native, led to such heavy demands on the land and time of the cultivator that he had little opportunity of providing for his own subsistence.

LATER DEVELOPMENTS

The first step towards reform came in 1848 and the Agrarian Law of 1870 practically abolished the Culture System, though its effects are still evident at the present day. The Culture System had the merit

of demonstrating that under European supervision crops could be profitably grown for export and its success stimulated private enterprise to enter the field. During the last quarter of the nineteenth century many European planters built up huge fortunes on the foundations Van den Bosch had laid. At first they concentrated on crops which had been grown successfully by the government, especially sugar, coffee and indigo, though some experimented with tea and tobacco. Towards the end of the century the catastrophic failures of the coffee plantations and the spread of sugar-cane diseases combined with the bounty-fed competition of European beet sugar, compelled the planters to try other crops. A new stimulus to variety in production came at the beginning of the present century, when synthetic indigo ousted the natural product, and, about the same time, the introduction of Para rubber provided a new opening for enterprise.

The difficulties of the planters at the turn of the century led to the development of scientific research and to great improvements in their marketing organization. In their efforts to introduce scientific methods into tropical agriculture the planters soon won the active co-operation of the government. The Agricultural Department, however, since it was first founded in 1905, has interested itself primarily in native agriculture and with its help the more enterprising natives have profited by the example of the planters and taken to the cultivation of export crops, especially rubber. Moreover the demand of the sugar planters for water and the need of a rapidly growing population for rice have stimulated a great development of irrigation.

This combination of European and native agriculture, with the strong support of the government and the willingness to apply the results of scientific research, have been responsible for placing Java in the forefront of tropical countries as a centre of prosperous and varied agriculture. In the Outer Provinces natural conditions have been less favourable. Soil and climate are not so suitable. The population is comparatively scanty and the natives are less civilized; they have, moreover, never had the stern discipline of the Culture System. Thus, as a whole, the Outer Provinces are far behind Java agriculturally. Certain regions, however, are well suited for growing such crops as rubber and copra which are largely native-grown and the exports of these from the Outer Provinces in recent years have been greater than those of Java. Some parts of the Outer Provinces, too, have proved specially suited for certain plantation crops, for instance the Deli district of Sumatra for tobacco.

STATE AID TO AGRICULTURE

The government of the Netherlands Indies has built up an elaborate organization for helping both native and European agriculture. It has developed and organized irrigation, founded and maintained scientific research institutions and provided agricultural intelligence and education services by which the results of research can be made available. Further, the State has helped agriculture on the social and economic side by encouraging co-operation and by the provision of credit.

The attempt to introduce scientific methods into agriculture in Java may be said to date from the financial crisis of 1884 when widespread failures led to the concentration of control over the plantations by strong financial institutions. These insisted on a common policy for production and the sugar factories combined to establish experimental stations. The further development of the organization of the sugar industry has already been indicated on p. 310. Meanwhile planters growing other crops had combined into strong organizations dealing with tea, cinchona, coffee and cocoa, and rubber, each with its own experimental station. These were afterwards amalgamated into the General Agricultural Syndicate, which is a counterpart of the single large organization controlling the sugar industry. Similar associations have been formed in the Outer Provinces.

The three great planters' organizations, the Syndicate of Sugar Producers, the General Agricultural Syndicate and the Union of Tobacco Planters are linked up with the State, which accepts them as the official representatives of their respective interests. They advise the government, but have control over their own internal affairs and their experimental stations. These and other industrial and commercial interests are represented on the general Federation of Indian Industry and Commerce (*Indische Ondernemersbond*). Through this federation the government keeps in touch with all aspects of European enterprise and can render assistance where it is needed.

Alongside this organization, which is mainly private, is another mainly official. In 1904 Treub, the Director of the Buitenzorg Botanical Gardens, suggested that the various agricultural activities of the government should be brought under a single control. This suggestion took effect in the following year with the foundation of a Department of Agriculture. The growth of a wider conception of State functions during the present century led in 1928 to the creation of a Council of Natural Science as the coping stone of a comprehensive organization for scientific research. The numerous research

institutions forming part of this organization are grouped into two sections, one concerned with pure science, the other with applied. The pure science institutions are under the general supervision of the Director of the Government Botanical Gardens at Buitenzorg and include, besides the gardens (*'s Lands Plantentuin*) themselves, several other gardens, museums and laboratories occupied with problems of botany, fisheries and general zoology. Several of these institutions, notably the Buitenzorg gardens and the mountain garden at Tjibodas, have gained a world-wide reputation for the scientific work done there by their own staff and by visiting scientists from abroad. The applied institutions work for the benefit of native agriculture and also supplement the institutions which the European agricultural organizations have provided for themselves. The applied institutions were amalgamated in 1918 as the General Experimental Station for Agricultural Industry, which has a host of subsidiary institutions dealing with geology, plant diseases and many other subjects connected with agriculture.

The native cultivator needs State help in different ways from the European planter. The native is a good cultivator on his own lines, which are sounder than some western critics recognize, but he is ignorant of the principles of scientific agriculture and of economic conditions in the world markets; he also lacks capital. In all these respects he is at a disadvantage compared with the European planter and can greatly benefit from State assistance.

The Department of Agriculture when it was first formed in 1905 was intended primarily 'to devise methods for the permanent improvement of native agriculture'. In 1911 this department was merged in the newly-formed Department of Agriculture, Industry and Commerce, which in 1934 was reorganized as the Department of Economic Affairs. The work of the agricultural branch of this department is divided into five sections, dealing respectively with agriculture, horticulture, fisheries, agricultural instruction and agricultural economy. The largest of these sections is known as the Agricultural Information Service, which is organized regionally and in the Outer Provinces works under the Provincial Council. In each large administrative region there is a European agricultural expert (*landbouwconsulent*) with a large staff of trained native assistants who keep in close touch with the native civil service and the people.

In addition to supplying technical advice, the government provides agricultural education. The highest agricultural educational institution is the Secondary Agricultural School at Buitenzorg, which is

open to all sections of the population and provides secondary education in agriculture and forestry. Besides this there are two Culture Schools in Java, which provide a training for subordinate positions on estates and for government posts as agricultural and forest supervisors, and a number of Agricultural Industrial Schools run on native lines in which practical instruction is the main feature. In some parts of Java courses are also given in the villages by village or *desa* teachers.

Agricultural Credit

The government scheme for helping the native by giving him access to credit is known as the 'popular credit' (*volkscrediet*) movement. It had long been the practice for villages to have a communal granary to store food and seed for the coming year. This formed the basis for the village paddy banks which lend out seed rice to be repaid at harvest. In other villages similar banks were organized dealing in cash instead of rice. These needed working capital which, it was thought, could be obtained from local institutions of another type. For some years European officials had encouraged their native subordinates to form mutual benefit societies, the *priajibanken* or banks for officials. As part of the popular credit movement the *priajibanken* were reorganized on a new footing as 'subdivisional banks'. The original scheme was that the subdivisional banks, village banks and paddy banks should develop as parts of a single co-operative organization. This project confounded two distinct objects, the provision of credit and the encouragement of co-operation and it was never completely realized. Each small bank remained a separate unit and was too weak financially to raise or lend money on economic terms. In 1913 the Central Cash Bureau was constituted to overcome this difficulty and ultimately the movement towards centralization led to the creation in 1933 of the General Popular Credit Bank (*Algemeenvolkscredietbank*).

The fundamental soundness of the popular credit movement was demonstrated by the success with which it withstood the great depression of the thirties. How far it has succeeded in its object of helping the cultivator is uncertain. The loans from the subdivisional banks go largely to traders and even village banks finance petty trade as well as cultivation. Some critics suggest that the cultivators borrow as much as before from Chinese and other private money-lenders and that the popular credit movement has merely enabled them to borrow from the banks as well as from outside. Others hold that the banks

are useful to traders rather than to cultivators. These criticisms are probably exaggerated and there seems little doubt that the popular credit movement has been of great help to all classes of the people.

When the State credit system had been built up the government attempted to tackle the more difficult problem of encouraging co-operation. The village and other native institutions rest firmly on a communal basis, but it is another matter to induce villagers as individuals to co-operate on western lines. The initiative here came largely from the nationalist movement, which has encouraged the formation of 'wild' or unofficial co-operative societies. It has also led to the creation of the National Bank of Indonesia on joint stock principles, to finance native agriculture. The government has responded to the new movement by promoting the formation of co-operative societies under official supervision and by 1937 there were 410 such societies registered, of which 323 were credit societies, the remainder being for production or for sales or societies of consumers.

LAND TENURE

Non-native Lands

Once the protection of native rights had become the avowed policy of the government, it became a difficult problem to devise means for satisfying the legitimate demands for land of large-scale agricultural industry. The first satisfactory solution was found in the Agrarian Law of 1870 which provided that all land to which no one could prove a right of ownership should be deemed to belong to the government and could therefore be let on long lease to suitable applicants. This system originally applied only to Java and Madoera, but it was later extended to the directly governed Outer Provinces and, in the slightly modified form of the 'Agricultural Concession', to the self-governing territories as well. The long-lease system had two advantages over the previously general custom of hiring land on short leases from the natives; the longer tenure gave security for development and the rights obtained could be used as a security for loans. In densely populated areas where there was no unclaimed land, the hiring of land from the natives continued to be of great importance and in the self-governing principalities of Java (*Vorstenlanden*) a system of hiring land from the native rulers is in force.

At the present time land cultivated by others than the natives themselves can thus be held under any one of the following titles: by heritable long lease from the government (*erfpacht*), by hiring on

short leases from the native inhabitants, in the *Vorstenlanden* by concessions from the native rulers, and by 'agricultural concession' (*landbouw-concessie*) in the Outer Provinces. In addition, there are, particularly in the Batavia district, large areas of land in private ownership (*particuliere landerijen*) the titles to which in many cases date from the time of Raffles; the government has also let out small areas as gardens and small holdings, mainly to Eurasians and indigent Europeans, while, finally, a number of estates are still owned directly by the government and cultivated on its behalf. The areas held in these different ways are given in the following table:

Legal status of non-native agricultural land, 1937

Status of land	Area in acres	
	Java and Madoera	Outer Provinces
Long lease* (<i>erfpacht</i>)	1,447,670	1,485,100
Hired on short leases from inhabitants	232,280	—
Estate land in native states (<i>Vorstenlanden</i>)*	148,260	
Agricultural concessions		2,629,150
Private lands (<i>particuliere landerijen</i>)	1,205,870	
Long lease from Government for small holdings, etc.		7,400
Government estates	45,697	17,985

* The areas given are those of land held or leased. The area actually planted with plantation crops is for various reasons considerably less.

Source: *Indisch Verslag*, 1938, vol. II, pp. 242-4 (Batavia, 1938).

The *erfpacht* or long-lease system of letting land to European planters has worked well and little change has been made in the original form of the contract, though during the present century greater attention has been paid to native interests. Before a lease is granted opportunity is given to the villagers to enter objections and the Irrigation and Forestry Departments are consulted. The holder is free to cultivate any crop he chooses except opium, which is a government monopoly. He is subject to the ordinary taxes and pays a small rent (*canon*). A special permit is needed for the use of irrigation water. Provided the lessee keeps to the terms of his lease, he may mortgage his interests or transfer them to others. In the Outer Provinces much larger areas are leased and the rent paid is lower.

The chief form of agricultural enterprise to which the long-lease system was inapplicable was the growing of sugar-cane on village

land and for this purpose the hiring of land from the inhabitants on short leases is still a common practice. In order to prevent abuses a contract must be drawn up by a government official and confirmed by a civil servant. Village rice fields can be hired in two ways: either for $3\frac{1}{2}$ years at a low rent or for $21\frac{1}{2}$ years at a rent above a minimum fixed by the government. In the latter case the land must be temporarily returned to the cultivator during a certain number of west monsoons. Which method of hiring is preferred depends on the goodwill existing between the planters and the villagers; where relations are good the planter prefers to pay a small rent but have little legal security of tenure, where they are not he is willing to pay more in return for greater security. For 'dry' fields the maximum hire period is usually twelve years.

In the native states all land was formerly regarded as belonging to the native ruler and the villagers were obliged to pay him a rent as well as giving him a certain proportion of their labour. When it became the custom for the ruler to grant concessions to European planters the latter used to acquire a claim not only to the land but also to the unpaid services of the cultivators. On this system of forced labour a great sugar- and tobacco-growing industry was built up, but the condition of the cultivators was miserable and the need for reform soon became pressing. In 1918 a new regulation was introduced which guaranteed the planters possession of their land for fifty years, on condition that they would make agreements with the cultivators similar to those in force in other parts of Java.

Land held by Europeans in private ownership is diminishing in extent. During the nineteenth century the treatment of the cultivators on privately-owned estates was bad and led to several commissions of enquiry with little result. Towards the end of the century many of these estates passed into Chinese hands and in 1906 it was suggested that they should be acquired by the State in order to lessen Chinese influence and promote the welfare of the natives. Later some estates were bought by British and French capitalists, but the government did not in fact acquire any of them till 1910. In the following year provision was made for transferring them all to the government at an estimated cost of f 400 million. By 1931, 1,669,700 acres had been acquired, leaving 1,208,300 acres still in private ownership. The economic depression compelled the government to suspend further acquisition, but in 1935 the Java Private Lands Company was formed under government auspices to buy up the remaining estates and develop them with special regard to native

welfare. Of the land still remaining in private hands, only 111,900 acres now carry plantation crops, the other 41,500 acres being occupied by native cultivators.

Plantations directly owned by the government number fourteen in Java and two in the Outer Provinces. The government does not now, as in the days of the Culture System, aim at profit and employ compulsory labour; normal wages are paid and the object is the improvement of production. The oldest of these government plantations is a cinchona plantation established in 1854 and the others originated in experiments in rubber planting begun by the Forestry Department in 1900 and afterwards transferred to the Agricultural Department. In 1937 all the government estates were amalgamated under a single director and comprised eleven estates growing mainly rubber, one each growing rubber and gutta percha, rubber and oil palms, coffee, tea and cinchona and one enterprise in the Gajo Lands (Sumatra) for obtaining resin and turpentine. The total area of these plantations in Java was 45,697 acres, in the Outer Provinces 17,985 acres.

Native Lands

In the East Indian islands there is a long-standing tradition that the community, tribal or territorial, enjoys a right of disposal over the land within its sphere of influence. Recently, however, there has been a tendency for the individual to remain in permanent hereditary possession of his land, with a title not very different in practice from the western right of private property.

After the establishment of the Culture System in Java the increasing development of export crops for which large-scale cultivation was necessary led the government to encourage the idea of the communal ownership of land, which had the further advantage of strengthening the authority of Regents and village headmen through whom the government exercised its control. The natives, moreover, were glad to avoid the burdens attaching to the individual possession of land. Thus, particularly in the sugar- and indigo-growing districts of east Java, the system of communal tenure with a periodical redistribution of the land became firmly established.

Towards the end of last century the planters, finding that the communal system of land tenure hampered their efforts to acquire land, urged that individual rights of property on western lines should be introduced. The government has resisted this development as harmful to native interests, but the trend towards individual instead

of communal occupancy has nevertheless made considerable headway. The proportion of villages in which all land is held by individuals rose from 18.5% in 1882 to 38.7% in 1927. Even in villages where communal ownership still prevails there has been a tendency for individuals to hold their share for life and for the periodical redistribution of land to take place at longer and longer intervals. As late as 1927, however, over half the villages in Soerabaja Residency redistributed their land every year.

Outside Java every form of native land tenure is found, varying from the common right of a primitive community over its hunting grounds to the ownership of large and valuable rubber plantations by individual villagers. Over much of the Outer Provinces shifting cultivation in the jungle is practised and possession is impermanent because cultivation is impermanent.

The individual holdings of native cultivators in the Netherlands Indies are usually small. Thus, in Java the average holding per land-owner, including both 'wet' and 'dry' land, was returned as 3.95 acres in 1922, 2.45 in 1930 and 2.20 in 1937; these figures, however, are not strictly accurate, as cultivators with several holdings may have been reckoned more than once. In east Java, where individual possession prevails, there would seem to be a tendency towards aggrandisement and casual references to land-grabbing suggest that in some villages the land is passing into the hands of village money-lenders. In general the land is held in tiny shares by cultivators who may be in debt, but have not been compelled, or are not permitted, to make over their land to non-agriculturalists.

FISHERIES

The fisheries of the Netherlands Indies are chiefly important because they provide the large and increasing population with one of its staple foods; together with rice, fish is one of the main items in the diet of the Javanese and other native peoples of the archipelago and is their chief source of protein.

SEA FISHERIES

Both deep-sea and shore fishing are important occupations all along the coasts of the islands. The shore fishermen usually carry on fishing as an occupation subsidiary to agriculture, but the deep-sea fishermen usually have no other occupation. As well as the native and Chinese

fishermen, Japanese fishermen, many of whom have been suspected of being spies, have frequented both the coastal and the deep-sea fishing grounds since about 1924.

Along the north coast of Java and Madoera and in the more densely populated parts of the Outer Provinces a considerable native trade in fish has grown up. In the years before financial disaster overtook the Javanese sugar plantations native merchants sent whole wagon loads of dried fish inland for sale to the coolies on the estates. In this trade producer and consumer, as well as the merchants and the middlemen, are Javanese, and it is clear that it is the economic environment rather than any defect of character which has prevented the native from taking a larger part in commercial developments.

Fishing methods

Fishing methods are diverse and include lining, seining, gill netting, stake nets, traps and dip nets. Lining with hand-lines is common everywhere, but information about it is scanty except for Java. Here the *majang proas* use several kinds of long-line and hand-lines on the south coast. An anchored form of long-line known as the *panching raweh* is much used. Kite angling for garfish from a small canoe is a common method of fishing in the Moluccas and may also be seen in the islands lying to the north of Batavia (Fig. 44). Native fishing for

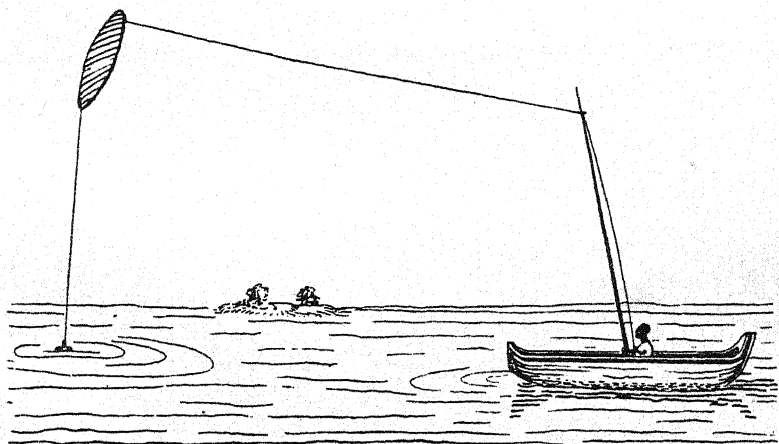


Fig. 44. Angling with a kite (*Manching lajang*)

This form of fishing is carried on mainly in the Moluccas, but may be seen almost anywhere in the Netherlands Indies.

Drawn from a photograph.

bonito consists of trailing a hook, baited with a feather, from small sailing boats or outriggers. Seining, especially with beach seines, is pursued from suitable beaches on all the islands. The net is taken out in a small outrigger or rowing boat and shot in a semi-circle and then hauled in. The *majang proa* operates a seine with a deep bag in open sea in conjunction with fish decoys known as *roempon* or *tendak*. The decoy consists of a long rope anchored to the sea bed and buoyed with a bamboo float at the surface. Coconut leaves are fixed to the rope at intervals. Many decoys are set days ahead and fish of the herring and mackerel families and related varieties tend to collect around a floating object like this. The fishing boat returns after several days and quickly shoots the seine around the lure which is then hoisted up and the net hauled. A daily haul from each decoy is the normal procedure. The catch consists mainly of *lajang* (*Decapterus* sp.) Fishing areas on the north Java coast are between 20 and 50 miles out, but the smaller *majang proas* may operate closer inshore. Gill nets and drift nets comparable to those of European waters are known as *jaring*. These are used mainly at night or by day in the muddy waters of estuaries.

Fish-traps are of various types and include stakes, bow nets, fykes and funnel nets. In north Java large constructions on the fyke principle, known as *sero*, are used; these consist of several chambers connected by narrow entrances. A *sero* is always built facing a beach and a palisade of bamboo from the shore to the mouth of the trap guides the fish into it. Each trap is emptied daily, the catch consisting mainly of small coastal fish and shrimps. The *jermal*, a stake net with two long rows of stakes leading to an enclosure with a net, is much used in Sumatra in the estuaries of the big rivers. The big fishery at Bagansiapiapi depends largely on this gear for its catches. It appears that the disadvantage of the *jermal* is that it is costly to erect and, when tidal conditions alter in an estuary, it cannot be moved. For this reason the *jermal* is being supplanted by a smaller, more portable engine known as the *si stji*.

The *boeboe*, a Malay wicker basket trap, is much used in Java for catching the Indian Yellow-tail (*ikor koening*) on reefs (Plate 46).

On various islands large fishing towers may be seen in shallow water. These are used in conjunction with a large form of the Chinese dip-net (Plate 47).

The Jermal

A *jermal* is composed of two rows of palm stems driven into the



Plate 46. Fishing with a small hand-operated shrimp net, Java



Plate 47. Fishing with a staked dip net, Celebes
The fishermen watch for the passage of fish over the net from the trestle tower.

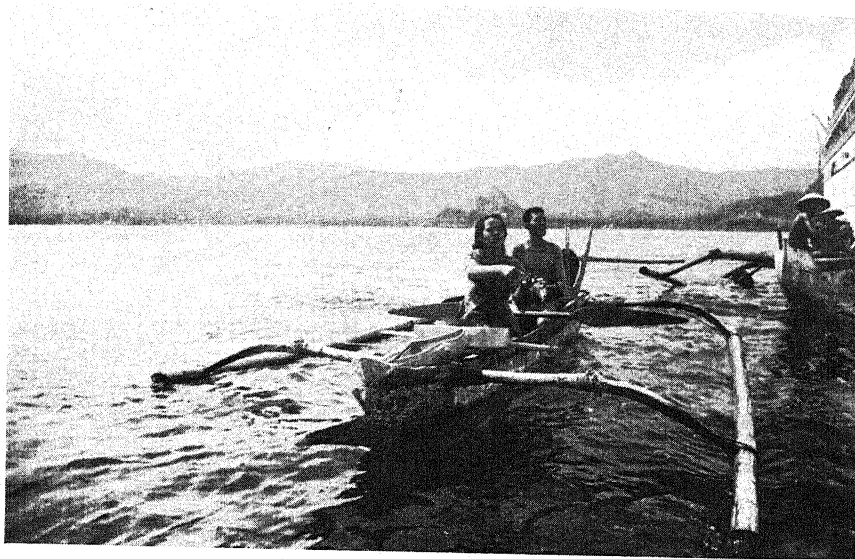


Plate 48. Outrigger canoe, Bali
The connective is the type illustrated in Fig. 45, No. 11.



Plate 49. Fish market, Batavia

bottom to form a big V. The median axis of this V is placed facing the main direction of the ebb-flow of the tide. The 'wings', which may have a length of over 500 yds., converge to a rectangular wooden paling in which a fine-meshed net made of rattan is suspended. The rectangular net is hung so that the edge at the front of the trap is on the bottom, while the edge furthest away from the opening is above water. When fishing is in progress during an ebb-flow the force of the current drives the fish on to the net whence they are removed with a scoop net. In the more elaborate constructions of this kind the slope and position of the net is controlled by hand-manipulated winches. Sometimes the posterior end of the net is bent to form a tunnel leading into a bag-shaped net where the fish are trapped. The bag is hauled up and emptied every 20-30 minutes during a catching period of 4-5 hours.

A big sea-*jermal* costs about thirty thousand guilders to build and several thousand guilders for repairs each year. Apart from the initial cost the *jermal* suffers from the disadvantage that once erected it cannot be moved. In the Soengai Rokan the strength of a current or the direction of it may change in a few years with disastrous results on the catches. Between 1929 and 1933 such a change occurred in estuarine conditions resulting in the abandonment of the *jermal* by many fishermen.

The Si Stji

The decline in the use of the *jermal* as a fishing trap caused many fishermen to adopt a similar, smaller, but transportable trap, the *si stji*. This is constructed on similar lines to the *jermal* but instead of having 'wings' consisting of palm stalks a fine-meshed net, supported by stakes, is used for guiding the fish towards the trap. Several of these nets are placed in a row side by side, each net having a length of 50-60 ft. between the ends of the wings. Together, they catch more than a *jermal* with the same width between the wings.

The *si stji* is much cheaper than the *jermal*. About ten of these nets may belong to one owner, their total cost being f 300-350.

Fishing Craft

Fishing craft throughout the Netherlands Indies are small craft of less than 50 ft. in length, most of the boats being small outriggers of 15-25 ft. in length. Minor trading and fishing outriggers are very much alike and frequently the same kind of boat is used for both

purposes. As a rule, however, the fishing craft are more rudely fashioned with little or none of the ornamentation seen in most of the trading outriggers. There is only one distinct kind of deep-sea fishing boat in the whole area. This is the Javanese *majang proa*, a vessel employed mainly for seining in the open sea up to fifty miles from the shore. The *majang proa* may reach a length of 45 ft. and is usually manned by about twenty men. It is to be seen on all Java coasts except the east and north-east coasts. All other fishing craft are double outriggers, single outriggers being only found in a few localities. These have either simple dugout hulls or hulls built up from a dugout keel.

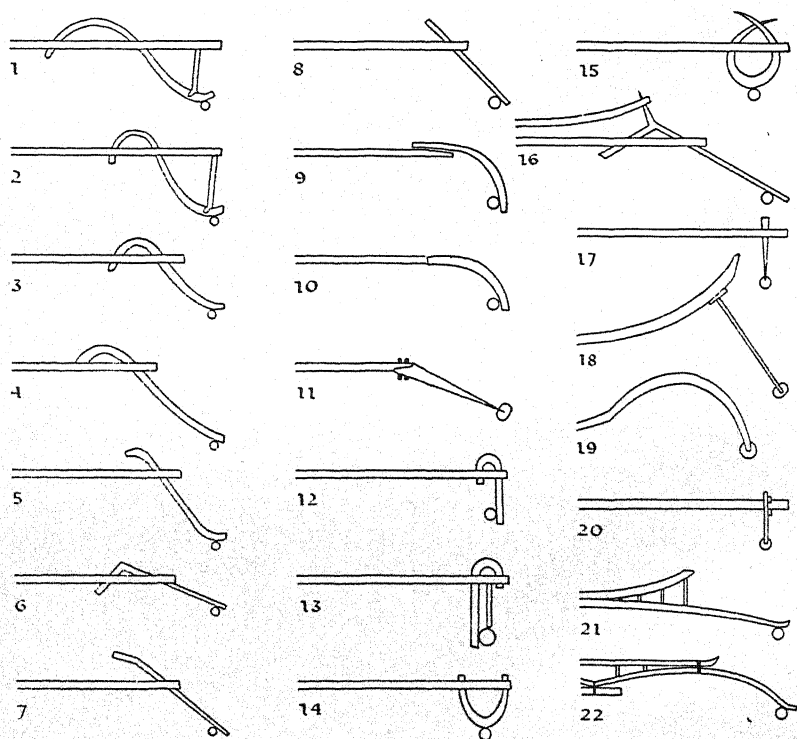


Fig. 45. Outrigger connectives

1, 2, 3. Minahasa, Celebes; 4. Lombok; 5. North Celebes, etc.; 6. Amboina; 7. Northern Moluccas; 8. Waigeo; 9. Wijnkoops bay (Java), Flores, Timor; 10. South-east Celebes; 11. Bali, Lombok and east Java; 12 and 13. South-east Celebes; 14. Moluccas; 15. Amboina, Banda, Ceram; 16. Tanimbar; 17. New Guinea; 18 and 19. East Java; 20. North Java; 21. Soeloe; 22. South Celebes.

There is a great variety in the outriggers from different areas and several features are useful in distinguishing the craft of one area from those of another. Chief of these is the way in which the outrigger boom is attached to the float (Fig. 45). In the Moluccas the favourite method of attachment is the U-shaped connective, while in Java and Bali several distinct kinds of connective are found. The distribution of the commoner forms of attachment follow broadly defined areas,

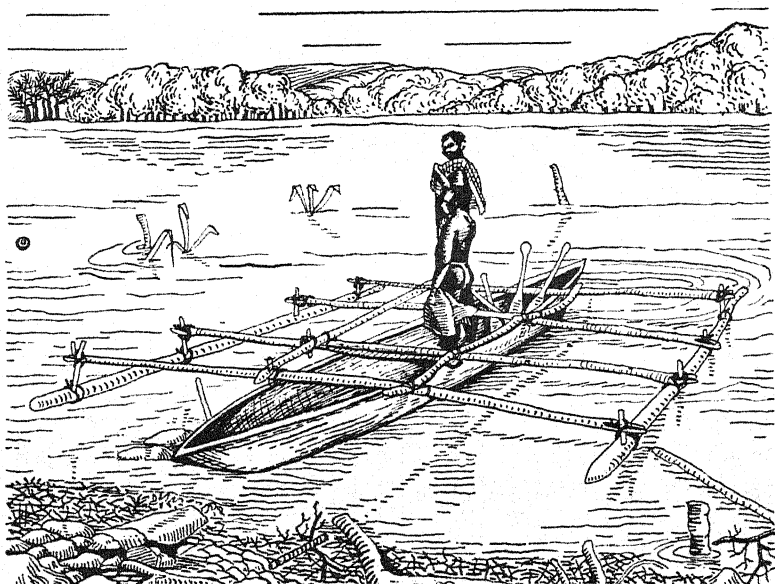


Fig. 46. Small outrigger, north-west New Guinea (drawn from a photograph.)

The connective is the type illustrated in Fig. 45, no. 17.

though here and there islands are found where several forms of connective are seen. The rarer or more specialized kinds of connectives are found only in well defined localities such as an island or a group of islands. This is especially true of eastern Java and Bali. The form of the bow and stern vary in different groups of islands and even in different parts of the same island. The bifid bow is especially characteristic of Java, Madoera and Bali craft, but may also be seen at other places such as the north-western point of New Guinea and in the Soeloe archipelago. The number of outrigger booms is usually two, but on

the fringe of the area to the east and to the north more than two booms are the rule rather than the exception. The primitive tripod mast although disappearing rapidly still survives in the Moluccas and Lesser Soenda islands and may occasionally be seen in Celebes. The two characteristic sails are the Malayan lugsail with a boom, and a triangular (modified lateen) sail. The latter is characteristic of eastern Java, Madoera and Bali, while the former is distributed throughout the area. Sometimes this lugsail is almost square in shape and sometimes enormously elongated in a horizontal direction to form an oblong or 'sompot' sail.

Some of the larger fishing canoes have a cabin built amidships. This is usually built outboard over the booms on either side of the hull. In this way quite a large cabin can be built on a small inexpensive hull and is probably partly the reason why outrigger craft have survived so long, especially in coastal trading. The cabin is of light construction being usually built of bamboo spars with a roof of *atap* leaves over which strips of bamboo are laid at spaced intervals.

Other Sea Products

Other sea products are pearls and mother-of-pearl, which are obtained mainly at Dobo and elsewhere in the Aroe islands, various kinds of shell-fish, turtles, and in the east of the archipelago, *trepang*, a food much appreciated by the Chinese. Agar-agar is obtained from seaweeds in the western part of the islands. Makassar is the chief market for such products.

The Chinese Fishery at Bagansiapiapi

This fishery is the most important in Sumatra and is carried on at Bagansiapiapi and the smaller settlements of Seneboei and Paipahan, all situated at the mouth of the Soengai Rokan. The fishing is in the hands of Chinese who settled here during the last sixty years and adopted the Malayan *jermal* for exploiting the fishery. In 1928 the total value of fish products, consisting of fish, shrimps and *trassi*, amounted to more than seven million guilders.

In 1929 the whole sea in front of the Rokan mouth was covered with *jermal* (fixed fish traps described above) which made navigation difficult. The tides are very powerful giving rise to strong currents which are particularly suitable for *jermal* fishing; drift nets are used outside the *jermal* area and lines may be used anywhere in the estuary. The local population is too small to consume all the fish caught, so

that in this and a few other places the salting and drying of fish and the production of products such as *trassi* is becoming important. Fish and *trassi* are consumed for the greater part in the Netherlands Indies (especially Java and the plantation area of Sumatra) and shrimps are mostly sold to Singapore. The total production of dried fish in 1939, however, was insufficient to meet the demand and considerable quantities were imported from Siam and other places.

FISH-PONDS

On the muddy parts of the north coast of Java, especially near the large towns of Batavia, Semarang and Soerabaja, a large industry has grown up of fattening fish in artificial salt or brackish water ponds known as *tambak*. This industry, like the fishing at Bagansiapiapi, is mainly a Chinese concern. The ponds are usually constructed on the sites of former mangrove swamps and the fish raised is chiefly the *bandeng* (*Chanos chanos*), also known as the milk fish, white mullet or (in Australia) salmon-herring. The fish lays its eggs in the sea between April and July. The fishermen anchor bundles of leaves in the sea and the young fish collect in the shelter thus provided; they are then caught in hand nets and carried in jars or tubs to the fish ponds. Here they feed on algae and water weeds and fatten remarkably fast. A year-old fish is about twenty inches long and at this age about a third of the fish have reached a marketable size.

FRESHWATER FISHERIES

The rivers and freshwater lakes of the Netherlands Indies abound in fish and though many of them are bony and not very palatable, the freshwater fisheries are of considerable economic importance. In the remote and less civilized areas the natives often catch fish by means of *tuba*, the root of the *Derris* creeper, and other fish poisons which kill or stupefy the fish but do not make them unfit to eat. Fish are often reared in artificial tanks or ponds, especially in the Preanger Residency in western Java; in some districts every compound has a tank where carp or other fish are bred. Fish are also cultivated in large numbers in the flooded rice fields, either between seed-time and harvest or between two crops. Some of the inland fisheries are thus productive all the year round, while others are seasonal. It is estimated that the inland fishing waters cover an area of over 100,000 acres, but the smaller ponds escape survey, so this is no more than a rough figure. The gross annual yield is about 65,000

tons and is worth about f 30 million. A good fish-pond may sell for as much as f 4,000 an acre.

Formerly these fish-ponds were discouraged as it was feared that they would lead to the spread of malaria, but now they are encouraged as it is realized that the fish devour the mosquito larvae.

A labyrinthic fish, the *gourami* or *guaramee* (*Osphromenus olfax*) is one of the chief fish raised in the freshwater ponds and its flesh is much esteemed. The productivity of the ponds is often increased by allowing the effluents of latrines to flow into them.

ADMINISTRATION AND RESEARCH

The government has taken a considerable interest in the native fishing industry, both sea and freshwater, and has done much to promote its prosperity. A division of the Department of Economic Affairs is concerned with sea fisheries and is run on commercial lines. Even during the depression of 1930 it managed to pay its way with such success that, although staff and wages were being cut down in all other departments, it was allowed to recruit new assistants from Europe at the height of the depression. The government has also established a Laboratory for Marine Investigations at Buitenzorg, where research is carried out on the mode of life of the chief economic fishes. The marine aquarium attached to this laboratory is open to the public and is one of the recognized 'sights' of the town.

Inland fisheries are under the supervision of the Agricultural Intelligence and Research Service, which has attached to its staff experts who act as advisers and carry out research into problems connected with the fish-ponds.

There is no tax on the sea fishing industry, but the catch has to pay market dues when sold at the port of landing. Some revenue is derived from the inland fisheries, as they are assessed for land revenue, being reckoned, rather incongruously, as 'dry land'.

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Chapter VII

FORESTRY

Extent and Character of the Forests: Economic Value of the Forests:
Forest Policy and Administration: Bibliographical Note

EXTENT AND CHARACTER OF THE FORESTS

More than half the total area of the Netherlands Indies is forest covered. Large tracts in Borneo, Sumatra, Celebes and New Guinea still bear primaeval jungle, though there has been much felling and in all the islands there are large areas where the forest has given place to cultivation, grassland or wildernesses of scrub and ferns. It is estimated that in the Outer Provinces no less than 296.5 million acres (68% of the whole area) are forested, while forests still occupy 7.4 million acres or about a quarter of the surface even in densely populated and intensively cultivated Java. Only the Lesser Soenda islands, with their low rainfall and dry east monsoon, are poorly wooded. The percentage of forest in the different islands varies on the whole inversely with the density of the population, so that of the larger islands Borneo and New Guinea have the highest percentage and Java the lowest (Fig. 47).

Forest Types

The chief types of forest have been described in some detail in vol. I, ch. XII of this Handbook, and estimates of their area are given in the table on p. 235, but it is necessary to emphasize here some features which are of economic importance. By far the greater proportion of the forests of the East Indies, in fact nearly all those except in areas with a strong east monsoon (east and central Java, Lesser Soenda islands and southern Moluccas), are mixtures of tall evergreen hardwoods, the 'tropical rain forests' of botanists. In these forests there are enormous numbers of different kinds of trees, but only comparatively few of these kinds are of much value as timber. Because these rain forests are so mixed in composition, and because the useful timbers are scattered through a mass of more or less valueless trees, these rain forests are not as valuable as they might appear to be, and their economic exploitation is a difficult problem.

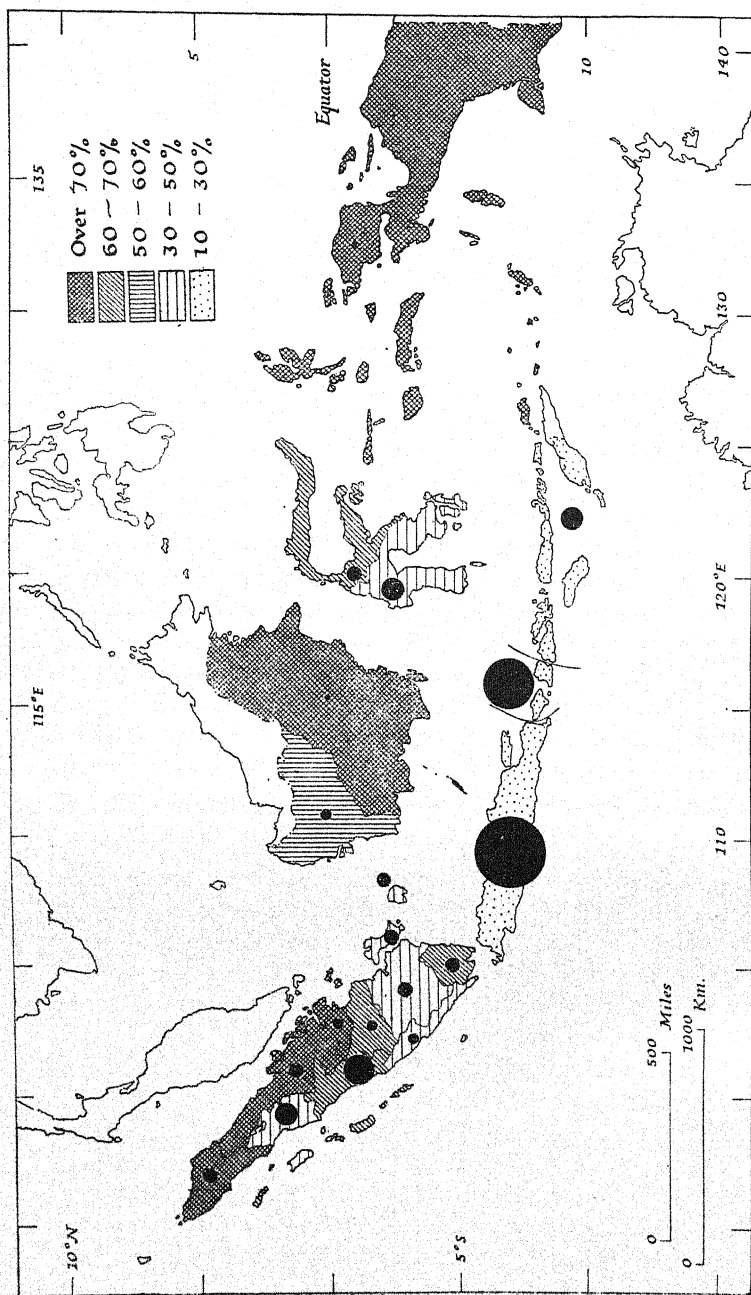


Fig. 47. The relation between forest area and population density in the Netherlands Indies. The shading indicates percentage of forest cover in each Residency; the circles show the population density in different areas according to the following scale:—

Forest Covering of the Netherlands Indies (millions of acres).

	Sumatra and Riouw	Bangka and Billiton	Borneo	Celebes	Lesser Soenda islands	Moluccas and New Guinea	Total for Outer Provinces	Java and Madoera	Total for Netherlands Indies
Evergreen forest with few Dipterocarps	44.5	0.25	22	24.9	5.2	84	180.85	5.4	186.25
Dipterocarp forest	18.5	0.25	79	—	—	—	97.75	—	97.75
Mixed Deciduous forest	—	—	—	—	2.5	—	2.5	—	2.5
Teak forest	—	—	—	0.05	—	—	0.05	2.0	2.05
Agathis forest	—	—	—	7.4	—	7.9	15.3	—	15.3
Casuarina forest	—	—	0.12	—	0.2	—	0.32	—	0.32
Eucalyptus forest	—	—	—	—	0.22	—	0.22	—	0.22
Mangrove forest	1.7	0.2	3.7	0.5	0.07	2.5	8.67	—	8.67
Sago forest	—	—	—	—	—	19	19	—	19
Grassland with <i>Pinus</i> <i>Merkusii</i> woodland	1.5	—	—	—	—	—	1.5	—	1.5
Area of forest reserves at end of 1934	15.3	1.2	3.9	1.0	1.7	—	23.1	6.4	29.5
Total primary forest	56.2	0.7	104.82	32.85	8.19	113.4	324.66	7.4	332.06
Secondary forest	18	3	17.3	2.47	—	0.07	40.84	—	40.84
Total of primary and secondary forest	74.2	3.7	122.12	35.32	8.19	113.47	365.5	7.4	372.9
Forest area according to the <i>Indisch Verslag</i> , 1938	71.7	1.4	103.8	24.9	3.2	93.9	298.9	7.4	306.3
area	128	4.2	133	46.9	19.3	137	468.4	37	505.4

Source: J. W. Gonggrijp, 'De bebossing van Nederlandsch-Indië', *Tectona*, vol. xxxi, p. 47 (Buitenzorg, 1938), and *Indisch Verslag*, vol. ii, 1938, pp. 283, 286 (Batavia, 1938).

Only exceptionally are rain forests found in which one species forms a clear majority of the whole stand; the *bilian* or ironwood forests of parts of Borneo and Sumatra are an example. In the drier areas, where there are several successive nearly rainless months during the east monsoon, the evergreen rain forests give place to forests which lose their leaves during the dry season. The most important type of forest in this class is the teak or djati forest, which covers nearly 1,977,000 acres in east and central Java as well as smaller areas in the Lesser Soenda islands and Celebes. In this kind of forest the great majority of the trees are teak, so that the composition is much less mixed than that of the rain forests; for this reason, and because of the unique properties of the teak timber, the teak forests are of far greater economic importance than the rain forests. The forest administration has always given much more time and attention to them than to any of the other types of forest and for administrative purposes the forests are grouped into *djatibosschen* and *wildhoutbosschen* or 'wild timber forests'.

In addition to the rain forests and teak forests which grow on well-drained land, there are freshwater swamp forests and the mangrove forests, which grow between the tide marks on the muddy shores of estuaries and sheltered bays. The former are of small economic value, but the latter are of considerable importance, mainly as a source of firewood.

Secondary Forest

When virgin or primary forest (whether rain forest or deciduous forest) is felled, the ground if left to itself will become covered with a dense growth of trees in a very short time. This new vegetation is known as 'second-growth' and gradually, generally in less than twenty years, it develops into a 'secondary forest' which differs in various ways from the original primary forest. It consists mostly of rapidly-growing softwoods which are useless as timber and of very little value for any purpose. These fast-growing soft-wooded species are gradually replaced by slow-growing hard-wooded species characteristic of primary forest, but this process takes a very long time, how long is not known, but perhaps over a hundred years. If after the primary forest is felled the second growth is not left alone, but is grazed or repeatedly burned, no secondary forest will develop, and the land may be invaded by *alang-alang* or other grasses, or may become a thicket of shrubs or ferns. In most parts of the Netherlands Indies, particularly in the Outer Provinces, the practice of *ladang* or

shifting cultivation has led to the felling of huge areas of primary forest and a large proportion of the land reckoned as forest is in fact secondary forest and second-growth containing very little useful timber. There are also large areas where the forest has been replaced by *alang-alang* and scrub. The amount of untouched primary forest remaining is not known and may be much less than is generally thought; in any case the forests are certainly not inexhaustible.

ECONOMIC VALUE OF THE FORESTS

Among the timber trees of the Netherlands Indies the teak, as has been mentioned, holds unchallenged pre-eminence owing to its strength, durability and suitability for shipbuilding and many other purposes. It has, too, the advantage that it grows naturally in nearly pure stands which are easy to exploit and lend themselves to sylvicultural management. Teak forests are a characteristic feature on the

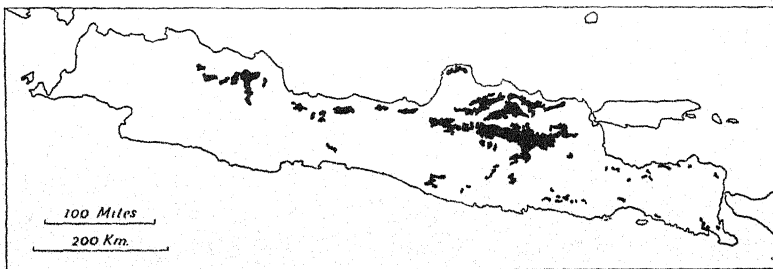


Fig. 48. Teak forests of Java

Source: *Atlas van Tropisch Nederland*, plate 17 (Batavia, 1938).

porous and infertile limestone soils of the low hills in the Rembang, Semarang, Madioen and Kediri Residencies of Java, but the teak forests outside Java are of comparatively slight importance. The teak tree will not grow successfully in districts where there is not a well marked dry season in the year. From the earliest days of European colonization the teak forests have been regarded as one of the chief assets of Java, but in the time of the Dutch East India Company, and for a long time afterwards, they were exploited in a reckless and destructive fashion. The establishment of proper administrative control over the forests led to great improvements and at the present day the teak forests of Java are among the best managed and most profitable in the tropics.

The obvious attractions of teak have tended to lead to the neglect of the many other valuable timbers. The majority of these are found in mixture in the rain forests and there is still much to learn about their individual properties and uses before they can be satisfactorily

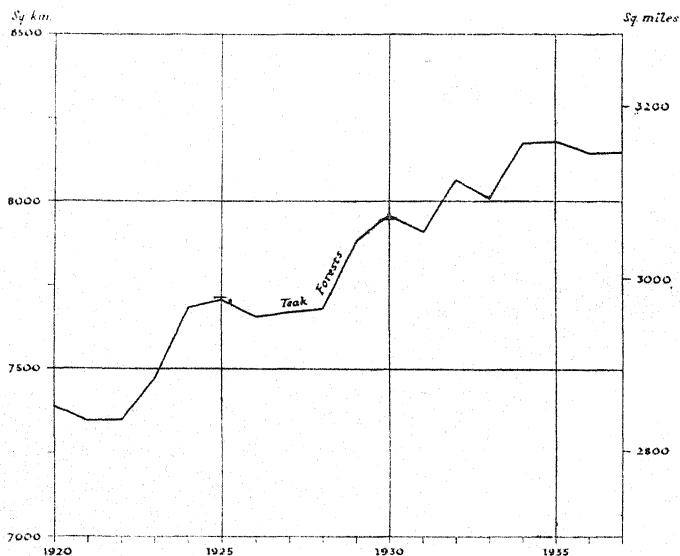


Fig. 49. Area of teak forests in Java

Source: *Indisch Verslag*, 1938, vol. II, p. 283 (Batavia, 1938).

utilized and marketed. Among the timbers of outstanding value may be mentioned the many trees of the family Dipterocarpaceae, known as meranti and under various other names, the kapoer or Borneo camphor, a straight-growing tree of great height which sometimes (e.g. in Atjeh) grows in nearly pure stands, the rasamala (*Altingia excelsa*), a forest giant characteristic of the mountain forests of western Java, and the Borneo ironwood (*Eusideroxylon Zwageri*), a hard timber, approaching teak in durability, which is abundant in parts of Borneo and Sumatra, but absent in Java. Besides these heavy timbers which are mainly suitable for constructional work, there are many beautiful ornamental woods, notably the Macassar ebony, which is the wood of various species of *Diospyros* found chiefly in the northern part of Celebes.

Among soft woods, the toesam or Sumatran pine, a native of the mountains of the Gajo region and elsewhere in Sumatra, deserves

mention. In recent years it has become of some importance as a source of resin and turpentine, as well as of a useful timber.

Another timber which occupies a unique place is the sandalwood (*Santalum* species) which is found chiefly in Timor and the neighbouring islands. The scented wood is highly prized, especially by the Chinese, who use it for ceremonial purposes and in 1929 the price of Timor sandalwood was as much as f 50 the pikol (131·161 lbs). The approaching exhaustion of the native sandalwood has led to the establishment of plantations, though on a small scale.

Besides timbers in the ordinary sense, there are also bamboos, used by the natives for innumerable purposes, and the poles of the niboeng palm which form an essential part of the fishing gear of the Sumatran fisherman. At the great fishing port of Bagansiapiapi some 50,000 of these poles are needed yearly and the Forestry Service has been forced to give some attention to the problem of maintaining and regulating the supply.

Wood is important for the manufacture of charcoal and the Forestry Department has recently explored the possibilities of using East Indian timbers as a raw material for manufacturing cellulose and products such as kraft paper. A number of timbers, including some of the native conifers and species of *Eucalyptus*, were tested and found to be suitable for the purpose.

A very important contribution of the forests to the economy of the Netherlands Indies consists of the so-called 'minor forest products', such as jelutong and other gums, dammar, resins and rattans. These products, which come mainly from the Outer Provinces, especially from remote and undeveloped areas such as the interior of Borneo and Celebes, are collected and transported by the natives by the most primitive methods, but together they form an economic asset of much greater importance than is generally realized. In 1938 they contributed at least 13 million guilders to the national income, as compared with 16 million from timber and wood products. In the same year, the value of the 'minor forest products' exported to foreign countries was 11·4 million guilders, which was about twice the value of the timber exported and represented about an eighth of the whole export of native production (including rubber and copra). The forestry authorities have recently come to realize that these 'minor forest products' are so important that more attention should be given to grading and regulating quality, as well as to maintaining the supply. The trees from which some of these products are obtained are in some cases in danger of extermination and already have to be sought

in more and more inaccessible areas. In Celebes, for instance, the older trees of the Kauri pine, *Agathis*, from which a valuable resin is obtained, are being tapped to death and unless it is replanted the species will soon disappear.

It would be a great mistake to measure the economic importance of forests merely by the value of the timber and other products obtained from them. This fact has long been realized by the government of the Netherlands Indies and is the basis of its far-sighted policy of forest reservation. Besides their productive value, forests may be important for conserving water supplies and play a vital part in protecting the soil surface against erosion. The water-conserving and soil-protecting functions of forests are particularly important in mountainous tropical countries, such as Java, where there is a high rainfall mostly falling as heavy downpours and not evenly distributed through the year.

The older view that the presence of forests has a significant effect in directly modifying rainfall is now discredited, but forests are certainly more efficient than most other forms of soil cover in storing and regulating the run-off of rain water. It is generally held that the mountain forests of Java, for instance, are essential to the prosperity of the agriculture on the plains below. They conserve the heavy rainfall of the west monsoon and allow it to run off gradually during the east monsoon so that the rivers never run entirely dry and a water supply for irrigation is available all the year round. It is for this reason that these forests have been preserved, and not because of their productivity, which is small. In some parts of Java, such as the basin of the Kali Brantas and north Bondowoso, large areas of *sawah* under rice have become less productive or even completely infertile in recent years owing to the failure of the water supply for irrigation, which is generally believed to be due to the reduction of the forest area on the neighbouring mountains below the necessary minimum, a state of affairs which can only be remedied by systematic afforestation. Though forests have generally been thought to be indispensable for maintaining water supplies in countries such as Java, some authorities have claimed recently that with proper precautions perennial agricultural crops such as tea, coffee and cinchona can provide a soil cover which is equally efficient in regulating run-off.

Whether the value of forests in maintaining water supplies is over-rated or not, their importance in protecting the soil against erosion is unquestioned. Soil erosion consists in the removal of the surface layers of soil, including the essential humus-containing layers, by

various agencies, especially rain water. The erosion may take the form of the carving out of gullies, or the whole of the surface may be removed more or less evenly. In the East Indies, especially in Java and Sumatra, the torrential downpours of rain, the high annual total of rain and the steep slopes all tend to favour erosion, but damage is not on the whole serious compared with many other parts of the world, except in limited areas, e.g. on loose volcanic ash and on the marl-like *schuifgronden*. The chief reason for the small amount of erosion is that in the Netherlands Indies bare ground, unless kept clean of weeds, rapidly becomes covered with vegetation. In the mountains the forests play a very important part, as experiments have shown. Thus in 1939 an experimental area of forest at Tjiwidej on the slopes of Goenoeng Patoeha in Java was clear-felled and planted with native crops. Under the forest cover, and for the first year after clearing, erosion was negligible, but in 1940 with a rainfall of about 137 in. erosion had reached a figure of about 1.1 lb. per sq. ft.

The substitution of cultivation for forest need not necessarily lead to extensive erosion. The system of growing rice on flooded terraces or *sawah*, for instance, is about as perfect an arrangement for checking erosion as can be devised, and even the *ladang* system of shifting cultivation, as practised in the Outer Provinces, is unlikely to lead to serious damage so long as the covering of the soil by second-growth vegetation is not interfered with by burning. Many agricultural systems, however, are extremely destructive and bring about rapid erosion, especially on steep slopes, for instance the Javanese method of growing rice for long periods in 'dry' (unirrigated) fields or *tegallan*. Even under a perennial crop, such as tea, erosion may reach large dimensions. Thus in the Preanger Residency in Java the tea bushes have in places had their roots laid bare and observations show that a layer of soil 20 in. deep has been washed away in ten to twenty years. It appears then, that, though with careful precautions, such as terracing and digging of catchment trenches, erosion need be no greater than under the natural forest cover. When agricultural practice is not of this high standard, as in the backward areas of the Outer Provinces, the present policy of reserving large areas of forest must be maintained, in the interests of soil and water conservation as well as in order to ensure a supply of timber for the future. A forest can, of course, yield timber as well as serving for protection and it has recently been suggested that in east Java, where the population is dense and land precious, the present comparatively unproductive protection forests should be replaced by plantations able to supply the

local need for timber, fuel, cellulose, tannin, turpentine and other products.

FOREST POLICY AND ADMINISTRATION

The control and administration of the forests in Java and Madoera is highly organized and efficient. In the Outer Provinces forestry is more backward, but the condition of the forests does not compare unfavourably with many other tropical countries.

Until quite recently the attention of Europeans was directed entirely to the teak forests of Java. In the early days of colonization, under the Dutch East India Company, the exploitation of the teak was destructive and unsystematic, with no regard for maintaining a steady output or for conserving the forest resources for future generations. There was a heavy demand for timber for building wharves, warehouses and boats and for all these purposes teak was mainly used. Already in the second half of the eighteenth century the north coast of Java had been stripped of valuable timber and teak had to be sought from the less accessible inland forests. At this period the inland Regents (the highest class of native officials) were required to deliver fixed 'quotas' of teak to the agents of the company. The felling and extraction were done by a system of forced labour; the inhabitants of certain villages were exempted from other 'quotas' in exchange for a teak 'quota'. These villagers became known as the *blandong* people and, as the teak 'quotas' were generally oppressive, their condition was miserable. Under Governor-General Daendels attempts at reform were made and the wood 'quotas' of the inland Regents were abolished, but they were reimposed later and the *blandong* system did not finally disappear till 1865.

With the ending of the Culture System and the enforced *blandong* labour, the forests were left for a time, in accordance with the *laissez-faire* ideas of the day, to the mercies of private contractors. This system, however, did not prove satisfactory, for, though clear-felling took the place of indiscriminate selection-felling, little or no attention was paid to re-planting.

The earliest attempts at scientific forest conservation date from 1849 when a few German forestry experts were installed in the forests of Rembang; in 1857 scientifically trained foresters were also sent out from the Netherlands. Great improvements in the management of the teak forests followed the appointment of the first Inspector of Forestry (*Inspecteur voor het Boschwezen*) in 1858.

The Forest Ordinance (*Boschreglement*) of 1897 instituted a system under which the teak forests were to be divided gradually into ranges (*houtvesterijen*) varying in size from 6,178 to 24,711 acres (later enlarged to 37,070 to 74,130 acres), each under the supervision of a university-trained forester. Each *houtvesterij* was to be exploited by the government, not by private contractors, following a working plan based on an exact survey of the growing stock. Until the parcelling out of all the teak forests into *houtvesterijen* could be completed, which would take many years, the remaining forests were divided into larger areas called *boschdistricten*. For these only rough working plans were prepared and exploitation was left to private enterprise. The system begun in 1897 has lasted with various modifications till the present day. During the interval the transference of the forests from *boschdistricten* to *houtvesterijen* has been almost completed and the exploitation of the teak forests has thus passed mainly into the hands of the government.

The trees are felled with axes and saws, or are dug up, and afterwards sawn into logs. Sound trees are made into round logs, hollow ones into square logs which are cut into beams, railway sleepers, etc., the wastage being used as firewood. The logs are drawn by buffaloes or bullocks to the nearest road or light railway. An extensive system of narrow-gauge railway lines has been constructed for timber haulage, amounting in 1928 to 1,119 miles. The trucks are generally pushed along the lines by coolies, but in the Rembang district, the chief centre of the teak industry, light steam engines are used to bring the logs to the main timber yard at Tjepoe.

While the teak forests have thus attracted attention for a very long time, the jungle forests or *wildhoutbosschen* were entirely neglected up till 1865. The forest ordinance of that year encouraged the reservation of the mountain forests of Java for protective purposes and a supplement to it in 1884 proposed a systematic policy of forest conservation by prescribing that the following classes of forests should be reserved in the interests of water supplies: (i) mountain forests in west Java above 5,000 ft. and those in east Java above 4,000 ft., (ii) forests on hill tops in less mountainous districts, (iii) forests within a distance of 328 ft. of springs and lakes. Forests to be reserved were termed *bosschen in stand te houden*, while forests which it was not considered necessary to reserve were termed *niet in stand te houden*. Though policy in regard to the *wildhoutbosschen* was at first purely negative and conservative, steps were taken later to ensure their rational exploitation and working plans have been drawn up for some

of the mountain forests of west Java which contain valuable timber. Generally speaking, however, the *wildhoutbosschen* of Java are mainly of value for protection and the difficulties of the terrain make large-scale exploitation difficult.

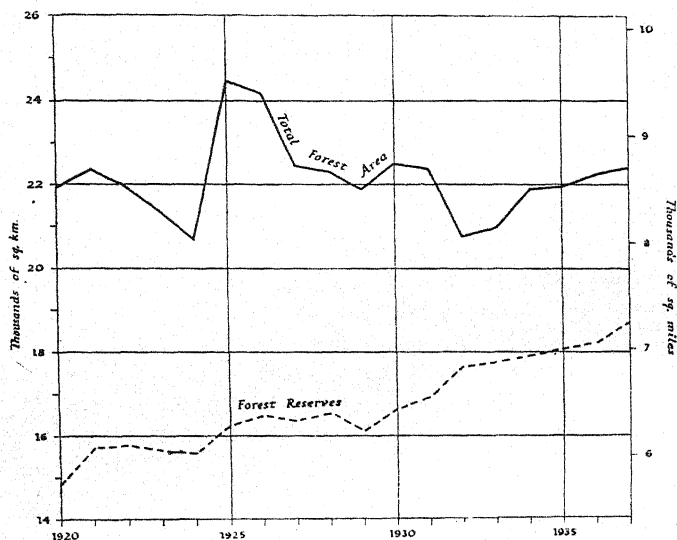


Fig. 50. Forests and forest reserves (excluding teak), Java and Madoera
Source: *Indisch Verslag*, 1938, vol. II, p. 283 (Batavia, 1938).

Besides conserving and controlling the exploitation of the native forests the Forest Service has in recent years carried out an active policy of afforestation in several parts of Java. For this purpose indigenous trees as well as introduced trees not native to Java, such as species of *Eucalyptus*, have been extensively planted. In some districts afforestation has been carried out by the *kenlandangan* method. This consists of interplanting the rows of young trees with food crops or even rubber. The natives are allowed to plant these crops and have the benefit of them on condition that they plant and care for the young trees.

The forests of the Outer Provinces, which as has been stated are chiefly *wildhoutbosschen*, received very little attention until quite recent years. A policy of forest conservation was begun in Sumatra in 1910. Since then large areas of forest in the Outer Provinces have been explored and surveyed and much research has been done to

determine the botanical identity of the trees, as well as the properties and uses of their timbers. The chief concern of the forest administration in the Outer Provinces has been to demarcate and reserve forests in areas where deforestation threatens to become dangerous. By 1937, 252,040 acres had been reserved. Exploitation is left mainly to private enterprise operating either in 'forest concessions' (grants of land up to 887 acres in area leased for thirty years for a fixed duty plus a royalty on the timber removed) or more often by 'felling licences'. Exploitation is carried out by the natives on a fairly large scale in south Borneo and in the Palembang district of Sumatra. In Bengkalis (Sumatra) and the Riouw archipelago the Chinese *panglong* timber cutters have built up a considerable industry, the products of which are sold in Singapore. The *panglong* work with primitive methods and small capital and rarely penetrate far from the coast or river banks.

In 1930, just before the economic crisis enforced retrenchment, the Forest Service of the Netherlands Indies consisted of a Chief Inspector, 11 Inspectors, and 123 Assistant Conservators, all trained in European universities. There were also 165 rangers, surveyors,

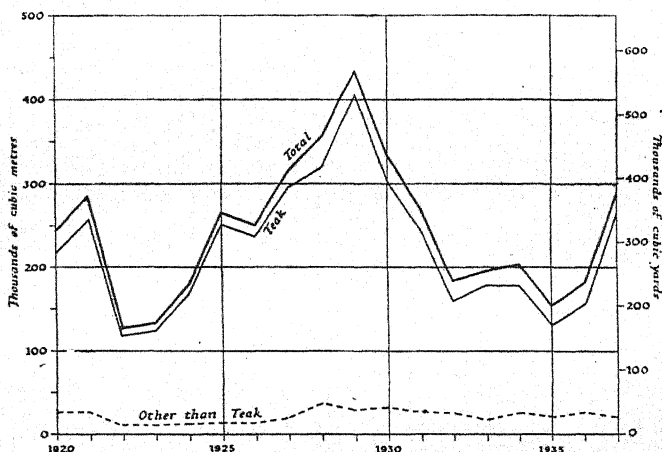


Fig. 51. Timber production, Java and Madoera

Source: *Indisch Verslag*, 1938, vol. II, p. 283 (Batavia, 1938).

etc., most of whom were Europeans, and 2,073 native foresters, forest guards, timber-yard overseers and foremen. There is a Forest Experimental Station (*Boschproefstation*), founded in 1913, which deals with research. The Forest Service works in five divisions, viz. the Division

of Survey and Working Plans, the Forest Experimental Station, the administration of the Java teak forests, the administration of the Java *wildhoutbosschen* and the administration of the forests of the Outer Provinces. From 1905 onwards the Forest Service was under the control of the Department of Agriculture (later known as the Department of Agriculture, Industry and Commerce), but in 1934 it was transferred to the newly-found Department of Economic Affairs.

The large amount of attention given to forestry has been fully justified by the results. The net revenue of the Forest Service rose from f 1,120,000 in 1897 to f 7,125,200 in 1928. Though there was a loss during the depression years 1932-35, revenue rose again to f 2,140,000 in 1937. The value of the timber exported in 1936 from Java and Madoera was f 837,000, and from the Outer Provinces, f 3,593,000. The total amount of timber felled in Java by the government was 1,013,534 cu. ft.

Fig. 51 shows the production of the teak forests in recent years, and the production of other forests in Java and Madoera. Similar figures for the forests of the Outer Provinces are not available.

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Statistics and other official information concerning the forests of the Netherlands Indies can be found in the Yearbooks of the Department of Agriculture, and since 1934 in those of the Department of Economic Affairs. The following works may also be consulted: J. W. H. Cordes (edited by A. E. J. Bruinsma), *De djatiboschen op Java, hun natuurlijke verspreiding, geschiedenis en exploitatie* (1881); G. S. Lugt, *Het boschbedrijf in Nederlandsch-Indië* (1912). A valuable journal, *Tectona*, is published in Buitenzorg under the auspices of the Society of Higher Forestry Officials in the Netherlands Indies, containing articles (in Dutch, but mostly with English summaries) on matters of research, practical and administrative interest connected with the forests.

Chapter VIII

MINING

Mineral Resources: The Administration of Mining: Petroleum:
Tin: Other Minerals: Bibliographical Note.

MINERAL RESOURCES

General Features

The Netherlands Indies have long been famous for their mineral wealth, and already at the beginning of the Christian era they were known in India and in the West as the land of gold and silver. The earliest Chinese reference to Java mentions the working of salt in A.D. 13, and there is evidence that even much earlier the native Indonesians were acquainted with gold, copper, bronze and iron. The first European travellers brought back tales of the diamonds of Borneo. A new and more utilitarian note was struck in the sixteenth century by a Portuguese reference to tin, and the monopoly of tin was a minor source of profit to the Dutch East India Company during the eighteenth century. Sir Stamford Raffles was the first to introduce control over the tin fields, but not until the last half of the nineteenth century was there any attempt at scientific exploitation of the tin and other minerals. Coal attracted attention from about 1850, and petroleum from the nineties. At the beginning of the present century, however, mineral products accounted for little over one-tenth of the total value of exports, and tin was still the only item of importance. With the rapid exploitation of the rich oilfields, the contribution of

Export of Tin and Petroleum Products

Year	Value (f mil.)	Per cent. of total exports
1900	29	11
1913	149	22
1925	207	15
1937	249	25

Source: *Statistical Abstract of the Netherlands Indies*, 1940, Tables 123-5 (Batavia, n.d.).

minerals to the value of exports increased, and by 1937 had risen to a

quarter, partly owing to greater production, and partly owing to changes in the relative prices of mineral and agricultural commodities. Petroleum, tin, coal and salt were still the most valuable assets, but from 1935 onwards there have been increasing exports of bauxite.

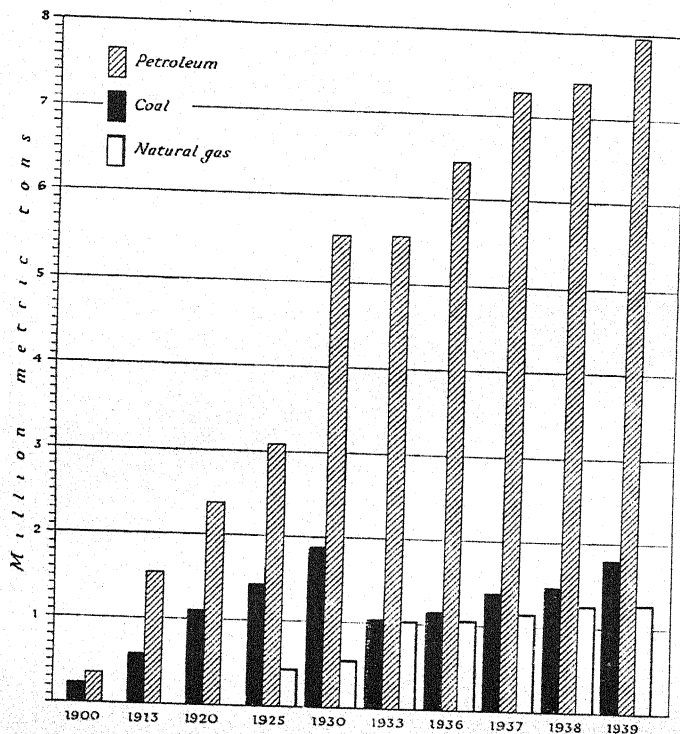
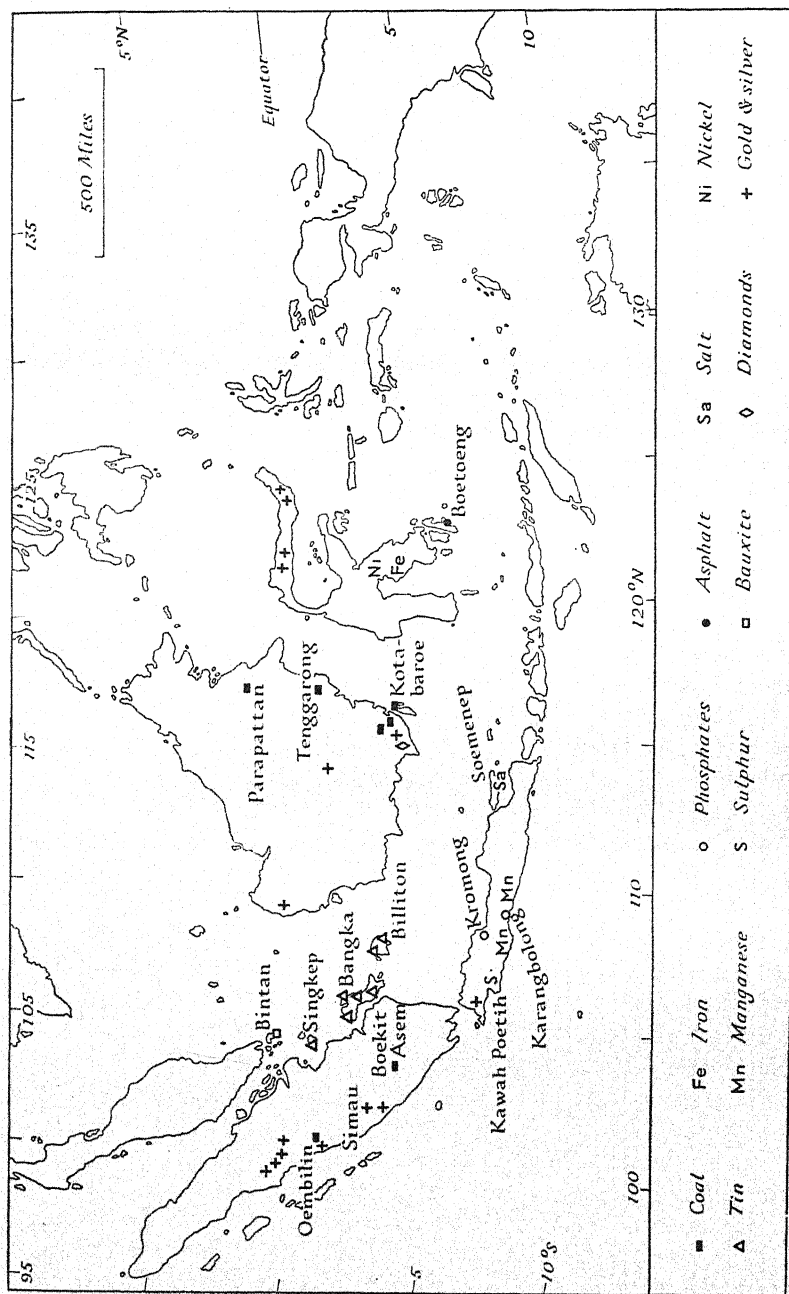


Fig. 52. Growth of coal and petroleum production, 1900-37

Source: *Statistical Abstract*, 1940, Tables 74-5.

Distribution of Minerals

Petroleum is widely distributed. In Sumatra the chief centres of production are in the Residencies of Atjeh, Oostkust, Djambi and Palembang; there are fields both in central Java and in east Java; another important centre is in east Borneo and the adjacent islands, Tarakan and Boenjoë. In addition, oil is obtained in small quantities from Ceram and is known to occur in New Guinea, Celebes and Timor. The production of tin on a large scale is confined to a few islands off the east coast of Sumatra, but a small amount is won by natives along the west coast of this island.



Among the mineral products of less importance are coal, bauxite, gold and silver. There are extensive coal mines near Padang and in Palembang Residency in Sumatra, and in south-east Borneo; there are also small native workings in west Borneo. Bauxite is worked in Bintan, an island off the east coast of Sumatra. Gold is widely distributed, but only in Sumatra is it won on any considerable scale, though it is also worked in Borneo and in the Manado district of Celebes. Silver is found in association with the gold, but the working of silver is practically confined to Sumatra. Borneo still yields diamonds, but the total value is insignificant. Manganese is found in the Jogjakarta and Preanger districts of Java; phosphates in Java from Cheribon to Rembang; and sulphur from Kawah Poetih and other volcanic craters in Java. Springs containing iodine are found in many places, but it is extracted only at Soerabaja. In Borneo there are extensive iron fields, as yet unexploited.

The principal salt-producing localities are in Madoera, but there are coastal salt-pan areas of less importance elsewhere in Java and in Atjeh, north and south Celebes, Timor and other islands of the Timor group, and in Bali and Lombok. Limestone is found in many parts of Java and in the Benkoelen and Westkust Residencies of Sumatra—in the latter it is used for the manufacture of Portland cement. Marl is worked near Padang for the local cement factory. Kaolin (china-clay) is worked in Preanger and Palembang, and trass in the Pekalongan and Preanger Residencies. The chief sources of building clay are the Djapara-Rembang area of northern Java, Palembang in Sumatra, and on a smaller scale, south Celebes.

THE ADMINISTRATION OF MINING

Until the middle of the nineteenth century the mineral wealth of the Netherlands Indies was closed to private enterprise. One of the earliest achievements of the Liberal reaction against the Culture System was a decree of 1851 sanctioning the grant of concessions outside Java and Bangka. About the same time, mining engineers were appointed to survey the mineral resources. Although they reported favourably on many sites, there was little response from capitalists, and in 1873 the regulations were amended to make concessions more attractive; they added Java to the field for private enterprise and provided that, except by special orders of the Crown, all new concessions and all renewals should be thrown open to public

competition. But grantees were liable to hindrance by the surface rights of cultivators, and were required to show that they had sufficient capital; also plantation agriculture was at that time more attractive. Thus the new regulations were little more effective than the former in attracting capital.

Meanwhile there was a growing demand that mining enterprise should be controlled by law. This took effect in the Mines Law of 1899, which did not become operative, however, until Rules under the Act were published in 1906. This law has formed the basis of subsequent legislation. In the first instance it applied only to the area under direct rule. But in territories where the Short Declaration (see p. 92) is in force rights over minerals coming under the Mines Act were withdrawn from the rulers under the Native States Regulation of 1927; in the remaining States the current Long Contracts gave control over mining rights to the central government. Thus a uniform mining policy could be enforced over the whole of the Netherlands Indies. The Mines Law distinguishes surface rights and subsoil rights; surface rights convey no title over certain specified minerals, but unspecified products, such as chalk and limestone, remain at the disposal of the cultivator under the ordinary civil law, or, if on waste land, at the disposal of the government by regulation; it also distinguishes between prospecting and mining, and provides for the grant of prospecting licences over wide areas on easy terms for a short period, and mining leases over restricted areas on rigorous terms for a long period. Concessions may be granted only to Dutchmen, to inhabitants of the Netherlands or Netherlands Indies, or to limited companies registered in the Netherlands or Netherlands Indies, with a majority of the directorate domiciled in either of these territories.

When the Mines Act was passed the prejudice against State interference with private enterprise still survived, and with a view to reducing this to a minimum it was decided to take a share, fixed at 4% of the gross yield; a prospector had to pay in addition a rent of $2\frac{1}{2}$ cents per hectare, and a mining lessee a rent of 25 cents per hectare. Socialists were already advocating State exploitation and when the law became operative they found support from the Governor-General, Van Heutsz. The law was therefore amended in 1910 so as to allow the State either to exploit mineral fields or to enter into 'exploitation contracts' with private companies to exploit the fields on terms more favourable to the State than concessions on the above lines. The rapid increase in the political importance of oil for export introduced

new considerations. It was deemed undesirable to allow private capital, foreign and conceivably hostile, to exploit a product so vital to the public welfare, and in 1918 the Mines Law was further amended by dividing into two groups the minerals which it covered; in respect of one group, comprising fossil fuels, coal, mineral oil and iodine, exploitation was reserved to the State, except by special legislation in respect of each concession. On the other hand some apprehension was felt as to the political reactions of State ownership over oilfields. A solution was found in an Act of 1921 which provided for joint exploitation by the State and a private company, in which the State should have a controlling interest. The prudence of this measure was apparent in recent conversations with Japan, when the demands of Japan for large quantities of oil-products could be referred to the companies interested on the ground that the government, as such, took no active part in the oil business.

Thus there are now four forms of ownership under which minerals are won: (1) State ownership, in which the State owns and works the field; (2) joint State and private ownership in which the State has a controlling interest in a private company and the latter works the field; (3) exploitation contracts in which the State participates in the net profits; and (4) ordinary concessions in which the State receives only a share of the gross profits, plus the rent. Formerly five concerns were owned and worked by the State: the Bangka tin mines; the Oembilin, Boekit Asem and Poelau Laoet coal mines and the Tambang Sawah gold and silver mine; the last two were closed down in 1931. There are two joint concerns: the *Nederlandsch-Indië Aardolie Mij.*; and the Billiton Tin Co. In 1938 arrangements were completed for the amalgamation of the Bangka and Billiton concerns, but owing to the outbreak of war this project was suspended. Of the exploitation contracts the most important is that with the *Nederlandsche Koloniale Petroleum Mij.* for the winning of oil in Palembang; the more recent oil concessions have been granted by special legislation under the amended Mines Act, but most of them were granted, for a period of seventy-five years, before 1918. At the end of 1935 there were 235 leases current in respect of minerals specified in the Mines Act, and 163 permits in force for other minerals.

In order to obtain a concession the first step is normally to apply to the local representative of the government for a prospecting licence. This may cover 24,710 acres and is valid for three years, but may be withdrawn after one year if not utilized; it may be extended for two periods of one year each if good cause is shown. The next step is an

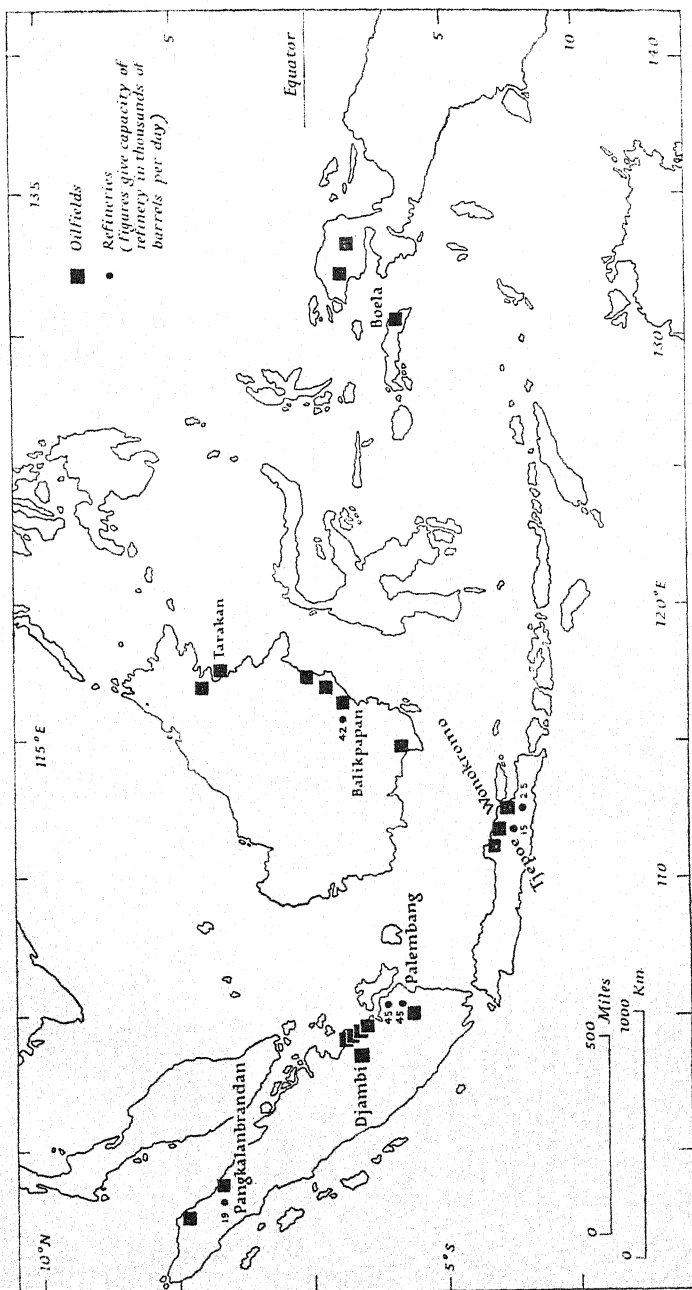


Fig. 54. Distribution of oilfields and refineries

Based on official sources

application by the prospector for a mining lease. The application must be submitted to the Governor-General with full details regarding the minerals to be worked and the methods proposed for working. A lease may cover an area of 2,470 acres and extends up to seventy-five years.

PETROLEUM

Although the existence of oil seepages has been known for many years, it was not until 1893 that commercial production started; between 1890 and 1900 there was great activity in the development of oilfields in Sumatra, Java and Borneo, as well as in the adjoining territories of Sarawak and Brunei. Up to the end of 1940 more than 1,000 million barrels of oil and large quantities of natural gas had been produced in the Netherlands Indies. There is storage capacity for two to three million metric tons, of which at least one million is for refined products. The characteristics of crude oils from the various fields, and particulars of refineries are given in the tables on p. 259.

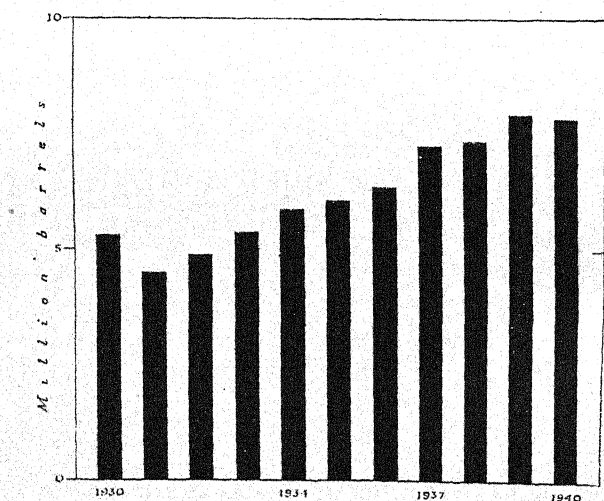


Fig. 55. Oil production, 1930-40

Based on official sources.

The larger oil companies, the area in which each operates and the tonnage produced in 1940 are given in the following table:

Company	Area	Production in 1940 (metric tons)	Controlling Interest
<i>N.V. De Bataafsche Petroleum Maatschappij (B.P.M.)</i>	N. & S. Sumatra E. Java N.E. & E. Borneo Ceram	4,545,000	Royal Dutch-Shell Group
<i>N.V. Nederlandsch-Indische Aardolie Maatschappij (N.I.A.M.)</i>	S. Sumatra (Djambi) Poelau Pandjang (N.E. Sumatra)	1,305,000	N.I. Government and B.P.M.
<i>N.V. Nederlandsche Koloniale Petroleum Maatschappij (N.K.P.M.)</i>	S. Sumatra (Palembang) E. Java (Rembang)	2,082,000	Standard-Vacuum Oil Co.
<i>N.V. Nederlandsche Pacific Petroleum Maatschappij (N.P.P.M.)</i>	Mid. Sumatra (E. Coast) N. Java	not known	Standard Oil Co. of California and Texas Corporation
<i>N.V. Nederlandsche Nieuw Guinea Petroleum Maatschappij (N.N.G.P.M.)</i>	New Guinea (Vogelkop)	—	40% Royal Dutch Group; 40% Standard-Vacuum through N.K.P.M. 20% Caltex through N.P.P.M.
<i>Borneo Olie Maatschappij</i>	E. Borneo (Mangkalihat peninsula)	—	Japanese interests

Based on official sources.

North Sumatra

The oil-bearing formations are of Tertiary age and run from north-west to south-east parallel to the main mountain ranges of the island (see p. 57 of vol. 1 of this Handbook). The chief fields at present worked by the *B.P.M.* are Rantau, Perlak, Serangdjaja and Paloe Taboehan. The old fields of Telaga Said and Darat were formerly exploited by this company but have been practically exhausted. Exploration of other areas to the north and south of these fields was proceeding actively before the war. The *N.I.A.M.* work a small oilfield on Poelau Pandjang, which lies north of Pangkalansoesoe (see vol. 1, pp. 91-2 of this Handbook). The bulk of the production comes from the Rantau fold, a field which was discovered in 1929.

Mid. Sumatra

Oil is known to occur between the Soengai Rokan and S. Kampari;

this district was being explored by the *N.K.P.M.* and the *N.P.P.M.* The former company has discovered a small field at Lirik in the Inderagiri district.

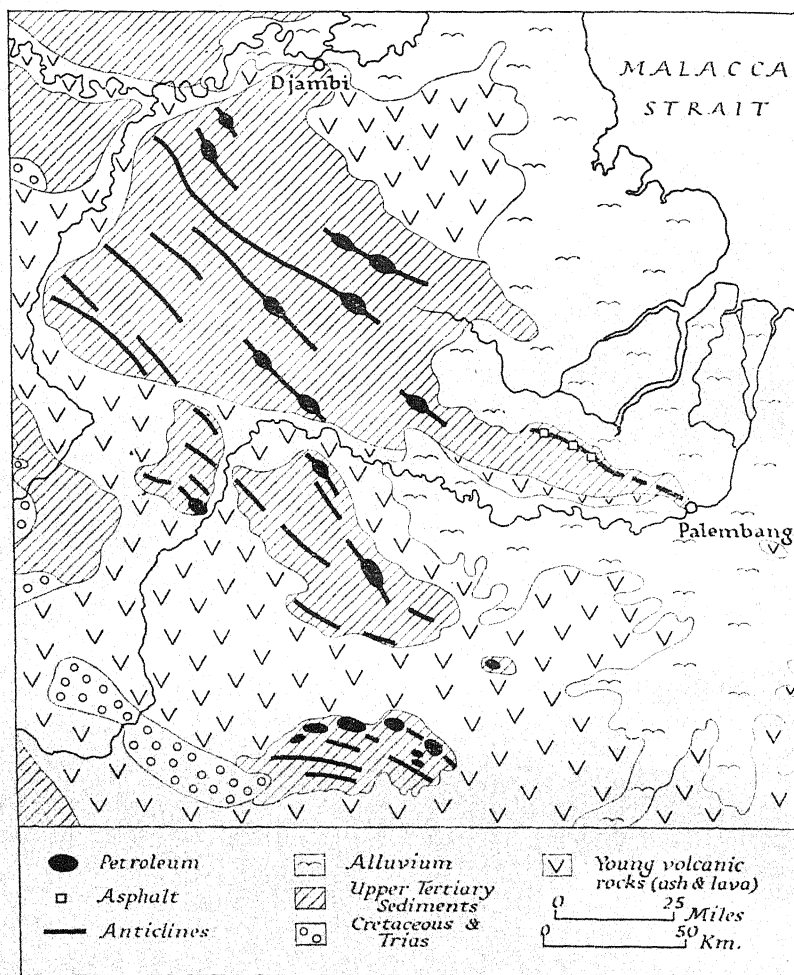


Fig. 56. The Palembang-Djambi oilfield

Based on 1 : 1,000,000 *Geologische Overzichtskaart van den Nederlandsche-Indischen Archipel*.

South Sumatra

The Djambi-Palembang region is the chief oil-producing area of

southern Sumatra (see vol. 1, p. 82 of this Handbook). In the Palembang Residency oil has been produced since 1898, principally on the Babat and Moearaenim concessions and along the Soebandjeridji anticline; the older wells varied in depth between 330 ft. and 2,300 ft. and tapped Lower Pliocene and Miocene sands. Wells down to 6,300 ft. in the Tertiary have been found to be productive. The main producing fields in 1940 were Talang Djimar (discovered in 1937), and Talang Akar-Pendopps. Most of the wells in these fields are between 1,000 and 4,000 ft. deep. These districts are worked by the *B.P.M.* and *N.K.P.M.* There are large refineries near Palembang (see plate 24, vol. 1 of this Handbook).

Java

Oil seepages, which are often associated with mud volcanoes and brine springs containing iodine and natural gas, are of frequent occurrence especially in the eastern half of the island, where several fields are worked, notably in the region of Rembang and Soerabaja. Oil has been produced from shallow Miocene beds in these fields since 1889, and there have been few recent discoveries except at Kawengan. The *B.P.M.* and *N.K.P.M.* work this district; the *N.P.P.M.* also have a concession, in which, however, little exploration has yet been done.

Borneo

Tertiary oil-bearing beds appear to occur only in the eastern half of Borneo and are worked in the Balikpapan basin and on Poelau Tarakan, just off the mouth of the Soengai Sesajap. Oil has recently been found in commercial quantities in the Barito basin.

On Poelau Tarakan oil has been produced since 1907; the crude oil is uniform and makes an excellent fuel oil. A little to the north of P. Tarakan is P. Boenjoe (Tanahmerah) where oil was found in 1923, but this field has not yet been developed.

In the Mahakam basin, in the neighbourhood of Balikpapan, oil is found in the Lower Miocene sandstone in a series of anticlines, the easternmost of which is the only one which has so far proved rich.

The *B.P.M.* and *N.K.P.M.* have exploited both these oil-yielding districts, while the *Borneo Olie Mij.* hold a few concessions near Sangkoelirang bay where oil has been discovered, but so far in small quantities only. The *N.K.P.M.* were carrying out extensive exploration in 1939 in parts of the Kapoeas basin to the west of their Mahakam concessions.

Ceram

At Boela, on the north-eastern coast of the island, an oilfield has been developed since 1914; the bulk of the oil is obtained from Pliocene sands, though some has also been found in the Triassic. The field is worked by the *B.P.M.* and is of considerable significance in view of the proximity of Amboina. Asphalt is obtained from the crude oil and is of importance on account of the increasing number of motor roads in the islands.

Other Islands

Oil is known to occur in New Guinea and Celebes, and also in Portuguese Timor, though it has not so far been found in Dutch Timor.

In Dutch New Guinea the *N.N.G.P.M.* since 1935 has carried out intensive exploration over an area of 38,000 sq. miles. Wells have been drilled at three places, Klamono, Wasian and Mogoi, all in the Vogelkop, and some oil has been discovered.

The *B.P.M.* has carried out exploration in a small area of the central part of the west coast of Celebes where oil seepages are reported to occur in Lower Tertiary or Upper Mesozoic formations. Asphalt deposits are being worked on Poelau Boetoeng off the south-eastern peninsula of Celebes.

Production and Export

The amount of oil produced from the chief fields in 1940 is shown in the following table:

Oil production in 1940

Area	Quantity (thousands of barrels)	Total production in barrels for:
North Sumatra Djambi Palembang	7,484 9,617 22,654	Sumatra 39,755,000
Central Java Eastern Java	5,608 560	Java 6,168,000
Tarakan Balikpapan	5,433 7,089	Borneo 12,522,000
Ceram	664	Ceram 664,000
		Netherlands Indies 59,109,000

Based on official sources.

Characteristics of Crude Oils

Place	Type of crude oil	Specific gravity	Special products
Pladjoe (Sumatra)	light and heavy waxy	0.750-0.950	aviation and motor gasoline
Pangkalanbrandan (Sumatra)	very light waxy	0.750-0.786	aviation gasoline
Soerabaja (Java)	heavy asphaltic	0.800-0.920	asphalt
Tjepoe (Java)	waxy	0.800-0.920	paraffin wax
Balikpapan (Borneo)	waxy	0.847 0.873 0.958	paraffin wax lubricating oils
Tarakan (Borneo)	heavy asphaltic	0.935-0.952	diesel and fuel oil
Boela (Ceram)	heavy non-waxy high sulphur	0.922	asphalt

Based on official sources.

Refineries

Place	Company	Capacity (barrels/day)	Notes
Pangkalanbrandan (N.E. Sumatra)	B.P.M.	19,000	
Pladjoe (S.E. Sumatra)	B.P.M.	45,000	High octane aviation spirit is a speciality.
Soengai Gerong (Pladjoe) (S.E. Sumatra)	N.K.P.M.	45,000	
Tjepoe (Mid Java)	B.P.M.	15,000	Supplies the Java market.
Wonokromo (E. Java)	B.P.M.	2,500	Supplies the Java market
Kapoean (Blora) (Java)	N.K.P.M.	500	
Tarakan (N.E. Borneo)	B.P.M..	—	Dehydration plant only
Balikpapan (E. Borneo)	B.P.M.	42,000	Treats crude oil from Boela also

N.I.A.M. crude oil is treated in *B.P.M.* refineries

Based on official sources

About 4 million tons of oil were exported from the Netherlands Indies in 1940. Much of the oil is exported through Singapore by way of the entrepôt installations on Samboe, Boekoem and Bintan islands; some also goes to the installation on Sebarok island, but this mainly serves British Malaya and the adjacent countries. Singapore is found convenient because the Sumatra oil ports, Pangkalansoesoe and Palembang are unable, owing to the existence of sandbars, to load ocean-going tankers to capacity. The former can load only about 50%, and the latter, even after recent dredging of the Air Moesi, only about 75% of a full cargo; though from Palembang, vessels carrying black oils can be topped up from hulks outside the bar. Moreover, Singapore is situated centrally, not only for the Sumatra ports but also for Miri (in Sarawak), and the products of two or more different refineries can be blended there, or mixed cargoes from different refineries can be shipped. Also it often saves valuable time to load an ocean-going tanker at Singapore only.

TIN

The largest tin-producing area in the world extends through the Malay Peninsula from the southern extremity of Burma and Siam, the Riouw and Lingga archipelagoes, to Bangka and Billiton; it extends into eastern Sumatra and reappears beyond the Barisan ranges at a few localities on the west coast. The only other area comparable in importance is in Bolivia. Formerly the Netherlands Indies ranked third among tin-producing countries after British Malaya and Bolivia, but since 1936 they have gone ahead of the latter country and taken the second place. Before the economic crisis of 1929 their share of the world output was about 18%; since then production has been governed by the policy of restriction (see p. 308).

Occurrence

The ore of tin is cassiterite (SnO_2) which only occurs *in situ* in veins or lodes the mineralization of which is genetically related to the formation and cooling of granite and allied rocks. In all probability the tin, in combination with fluorine and boron, was derived from acid igneous magma; by interaction with water vapour the metal was deposited as tin oxide, while the fluorine and boron thus released contributed to the formation of topaz and tourmaline, which are very common associates of cassiterite. Cassiterite possesses physical and chemical properties which enable it to withstand weathering processes

to such a degree that it remains unaltered throughout geological ages: it is virtually indestructible. Accordingly, when the veins and lodes are exposed to erosion, the cassiterite is washed down by rivers and accumulates, by reason of its high density, in gravel deposits, whence it can be extracted by digging or dredging. Not unnaturally these gravels extend beyond river mouths under the sea, and 'sea-tin' is of some importance, though not so much in the Netherlands Indies as at Singapore.

The occurrence of tin in Malaya and the Netherlands Indies may thus be ascribed to two events in the geological history of the region: first the Triassic earth-movements during which the granite masses were formed and the tin ores deposited in veins and lodes, and secondly the Pleistocene changes in sea level, which materially assisted the accumulation of vast alluvial deposits in and around the islands (see vol. 1, pp. 8, 126-7 of this Handbook).

The tin gravels are not, however, inexhaustible. One large dredger can remove more cassiterite in a day than would accumulate in a generation, and it follows that to an increasing extent the original sources—the veins and lodes—will have to be sought. Such primary sources have already been located in Bangka and Billiton, and are being worked; of recent years about 20% of the output from Billiton has come from deep mines.

Many of the alluvial fields are of considerable size, covering the whole width of river beds and extending for ten miles or more. The cassiterite is in general rich and easily workable, producing a metal of particularly good quality, which fetches a premium over 'standard' tin. There is, however, very little wolfram (ore of tungsten), elsewhere often found in association with tin, and until recently the total annual production of wolfram was less than a ton, but in 1939 it rose to 3,500 tons.

History

Tin was discovered in Bangka in 1710, and in 1722 the Dutch acquired from the sultan of Palembang a monopoly of all the tin produced in that island which was then subordinate to Palembang. Not until 1812, however, when Raffles annexed Bangka, was there any attempt to supervise production. With the restoration of Dutch rule in 1816 the mines on Bangka became the property of the Netherlands Indies government, but little attempt was made to develop them. Although mining engineers were appointed in 1853 the mines were still worked by coolies, almost exclusively Chinese,

on primitive lines, and only in 1890 was steam power introduced. With the gradual exhaustion of the surface deposits more elaborate methods of production were found necessary, and since the war of 1914-18 hydraulic pumps and large dredgers have been used.

Work on the fields in Billiton dates from 1852, when a small group of capitalists, urged on by Prince Hendrik, a brother of the king, obtained a concession entitling them for a period of forty years to exploit all ore deposits found on that island. As their funds proved insufficient they formed the Billiton Co. Ltd. in 1860 with a capital of f 5 millions to take over the concession. In 1924 the legislature sanctioned the formation of the Joint Mining Co. Billiton (*Gemeenschappelijke Mijnbouw Maatschappij Billiton*, often known as *G.M.B.*), with a capital of f 16 million, of which f 10 million was allotted to the government and f 6 million to the former Billiton Co. In 1933 the Billiton Co. bought up the other large tin enterprise, the Singkep Tin Co. This was followed in 1937 by a proposal to bring all the tin interests under a central control by the amalgamation of the Bangka and Billiton concerns. The necessary legislation was passed, but the project was abandoned or suspended in 1941 owing to the outbreak of war.

The Singkep Tin Co. was founded in 1887 to work a concession granted to it in that island by the sultan of Lingga. This proved unprofitable, but prospects improved in 1907, when the company obtained a concession from the Dutch government to work 'sea-tin'. In 1933 all the interests of the company were taken over by the Billiton group, which formed for this purpose a new company, the *Singkep Tin Exploitatie Mij.* (S.I.T.E.M.).

Mining

Since most of the tin is alluvial, the essential process in winning it consists in washing away the dirt from the tin ore. Ordinarily alluvial tin is found in layers which may be many feet below the surface, and the first stage was done by manual labour, almost exclusively Chinese. The earliest step towards mechanisation was the introduction of the gravel pump in Billiton in 1910; with this pump water could be directed over the working face, but manual labour was still needed to break up the soil. Then came the introduction of monitors, which broke up the soil with a powerful jet of water. A further stage was reached in 1920 with the use of bucket dredgers, which make it possible to dispense almost entirely with unskilled labour. The new dredgers include facilities for washing the ore mechanically on jigs and concentrating tables. A dredge run by 150 men working in three

eight-hour shifts can move as much material as formerly required four or five thousand labourers. The latest dredger at Billiton has a pontoon measuring 246×75.5 ft., and can dredge to a depth of 98 ft.; it can move 106 million cu. ft. of dirt annually. Billiton and Sinkep have at their joint disposal eighteen bucket dredgers and three hydraulic monitors, and Bangka owns ten bucket dredgers (Plate 51).

In Billiton some of the ore is found in veins and must be won by mining; in one mine the tin is worked at a depth of 984 ft.

Production

Until 1933 a small proportion of the ore was smelted in Bangka in modernized charcoal furnaces, but most of it was sent to Singapore for smelting by two British companies. Since then, however, much of the ore has been sent to a new smelter at Arnhem in the Netherlands belonging to the Holland Metallurgical Works, which claims to have the most efficient smelting plant in the world. In this company the G.B.M. is a shareholder. Recently it has been linked up with the Consolidated Tin Smelters Ltd. with plants at Liverpool and Penang. Some ore, however, is still treated in Bangka.

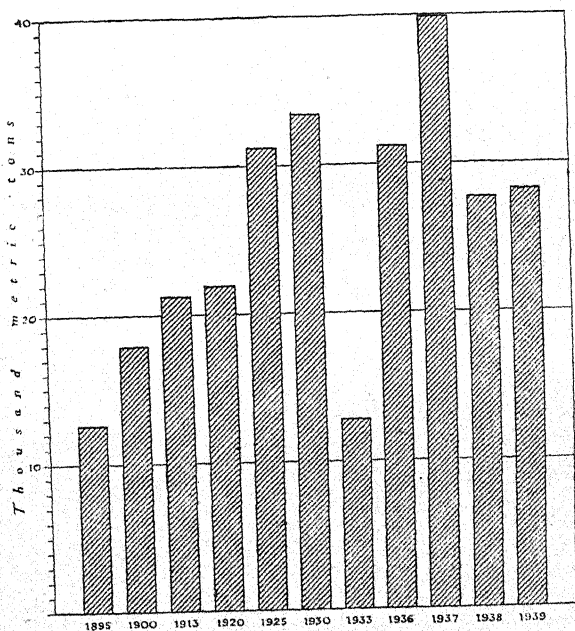


Fig. 57. Growth of tin production

Source: *Indisch Verslag*, 1938, vol. II, p. 287 (Batavia, 1938).

The improved methods of production since the war of 1914-18 are reflected in the greatly increased output. Up to 1913 there was a gradual rise, but after the war production increased so rapidly that in 1930 it was practically double that in 1900. To the production in 1930 the Bangka Co. contributed 21,943 tons; the Billiton Co., 10,786 tons; the Singkep Co., 1,162 tons, and the two smaller companies only just over a thousand tons together. Meanwhile world production had been growing more rapidly than consumption. There was a glut of tin, and the fall in prices consequent on the crisis of 1929 was therefore disastrous. In the Netherlands Indies, however, the mines were in a strong position. The G.M.B. since its foundation has adopted the policy of building up a strong reserve, enabling it to pay dividends in bad years. Since 1932 a similar policy has been adopted in the Bangka mines, with a view to stabilising the revenue from this source at £15 millions and maintaining a reserve of £35 millions. Thus, during the depression, the mines were able to buy costly machinery at favourable prices, and thereby effect further economies in production. By 1937 the position had so far recovered that the output reached a maximum of close on 40 thousand tons, but subsequently declined. In 1937 Bangka produced 23,476 tons, Billiton, 13,891 tons, and Singkep 2,365 tons; the native production in that year was only 14 tons. The total output in 1940 was 44,563 tons.

OTHER MINERALS

Bauxite

Some islands in the Riouw archipelago have been found to contain bauxite, the ore of aluminium. It has been worked since 1935 by the Netherlands Indies Bauxite Exploitation Co. The main field is in Bintan, but it extends into the neighbouring islands, which have been linked up with Bintan by a cable bridge (Plate 52). The ore is worked on scientific lines with a modern washing apparatus and a rotary oven for drying. The product is stored in warehouses with a capacity of 22,000 tons, and is transferred to the ships by machinery. In 1938 the quantity exported was 273,877 tons.

Coal

Coal is widely distributed and the total resources have been estimated at five to six thousand million tons. But much of this is at present inaccessible and the quality is in general inferior. It is of Tertiary age, and has a large percentage of moisture and gas, which

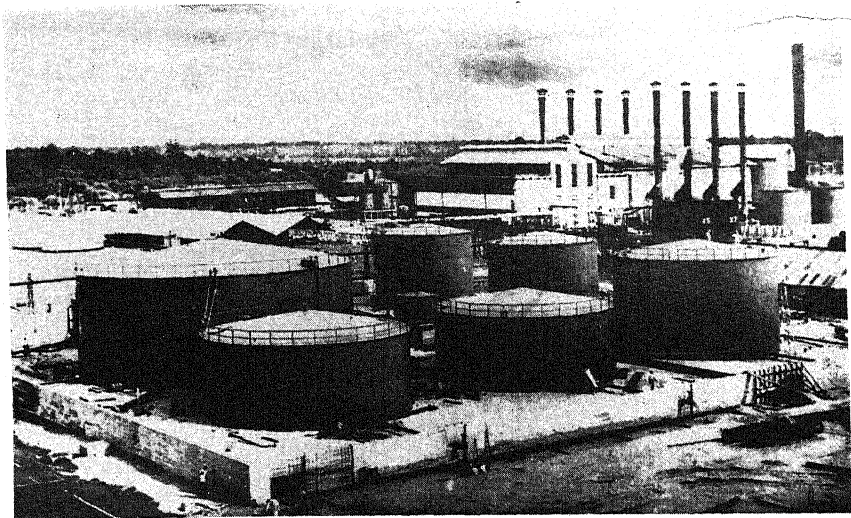


Plate 50. Tank park, Pladjoe

The oil installations at Pladjoe are the most important in the Netherlands Indies. The refinery (see Plate 84) has a capacity of 45,000 barrels a day.

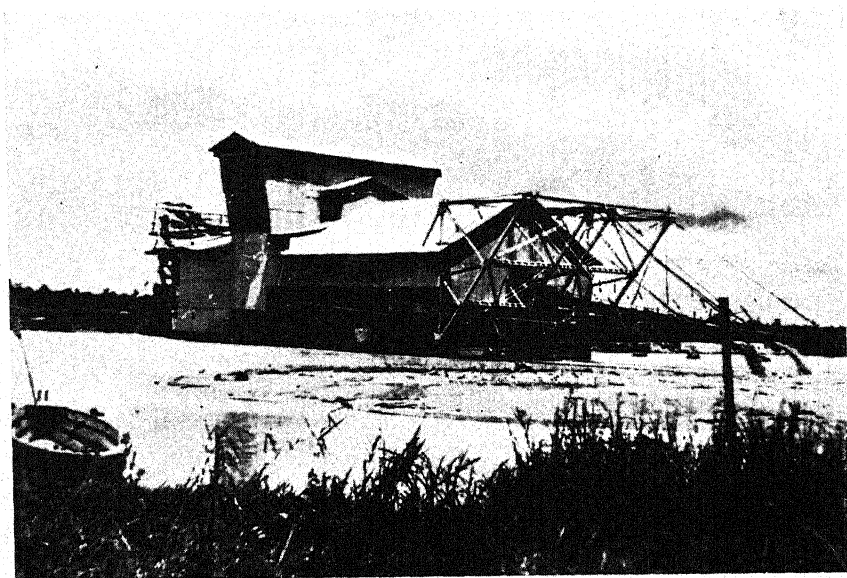


Plate 51. Bucket dredger, Billiton

This dredger is used in the mining of tin from alluvial beds, its chief function being to wash away the dirt from the tin ore.

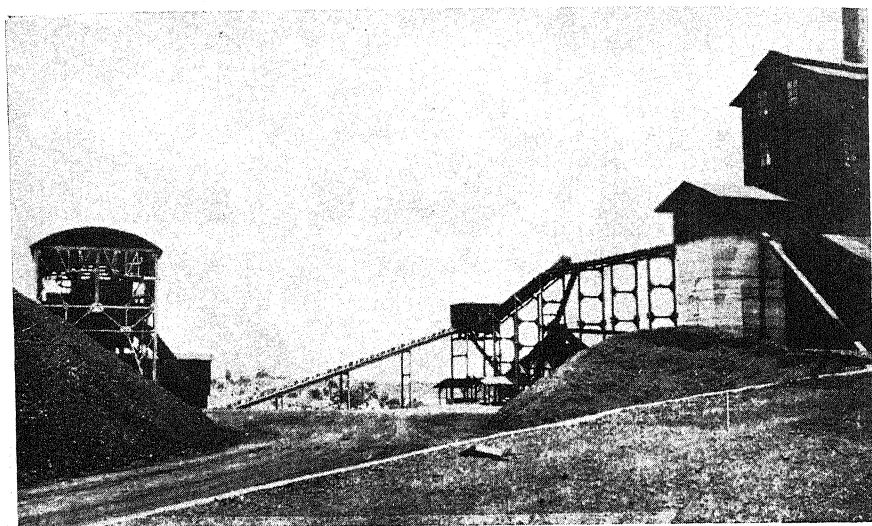


Plate 52. Bauxite mine on Bintan island

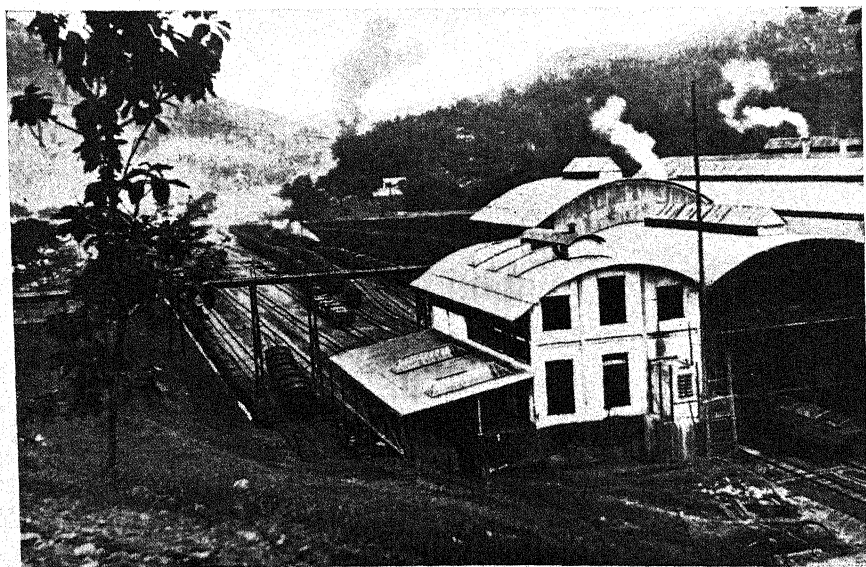


Plate 53. Pit head at Sawahloento in the Oembilin coalfield, Sumatra

renders it friable and apt to take fire spontaneously, so that its employment for steam-raising entails the use of specially constructed boilers. By compression into briquettes, however, it can be used on the railways and in steamships, and the fact that it lies near the surface reduces the cost of working, though this is counterbalanced by the high cost of transportation.

The chief fields are in Sumatra and Borneo. In Sumatra the mines at Oembilin near Padang and at Boekit Asem near Moearaenim are worked by the government (Plate 53); the State colliery in Poelau Laoet off Borneo has been closed since 1931. The total output of the State mines in 1939 was 1,222,000 tons. The private collieries, now only five though formerly more numerous, are all situated in south-east Borneo; the most important are Rantaupadjang and the East Borneo colliery which together account for nearly nine-tenths of the coal produced. The total output from these private collieries in 1939 was 532,000 tons. Until recently natives worked coal by primitive methods in Palembang and in west and south-east Borneo, but they have now stopped work in the two former centres.

When the mineral resources of the colony were first thrown open to the public in 1851, steam transport was just beginning to attract attention, and one of the earliest enterprises was an application for a coal concession in 1852. But this was premature, and subsequent attempts to exploit the fields in Borneo came to a tragic end with a massacre of the Europeans in Bandjermasin in 1859. The construction of railways from 1867 and the growth of steam shipping after the opening of the Suez Canal in 1869 made the demand for coal more urgent. Coal was discovered opportunely at Sawahloento, in the Oembilin valley, in 1868, but, as private capital was not attracted, the government began operations there in 1891. It opened other fields in Poelau Laoet in 1905 and at Boekit Asem in 1918. Private enterprise continued to show little interest, and in 1913 the total output from private mines was less than 10 thousand tons. The war of 1914-18 stimulated production, which rose rapidly to over 100 thousand tons in 1918 and to over 700 thousand by 1929. The output fell off during the depression, and in 1933 dropped to 375,000 tons. Since then it has risen again, as noticed above.

The Oembilin field (see vol. 1, p. 63 and Figs. 37, 38, 56 of this Handbook), roughly 6.2×5.6 miles, contains three seams, averaging from 6.9 to 23.3 ft. thick; the total reserve is estimated at 209 million tons. In the Poelau Laoet field there are two seams of which only one, about 6.6 ft. thick, has been worked. The Boekit Asem field (see

vol. 1, Fig. 47, of this Handbook) has four seams of which only the upper three are worked. The top seam consists of two banks of 19·7 ft. and 23 ft., separated by some 13–16·5 ft. of tufa; the next seam consists of two banks of 19·7 ft. and 9·8 ft. separated by 6·6 ft. of clay slate; the third seam is 16·5–19·7 ft. thick. The top seam is 65·6 ft. above the second, and this 82 ft. above the third; the fourth seam is about 328 ft. lower. The Boekit Asem coals have a higher calorific value than most Tertiary lignites, owing to their having been more or less baked by the heat of volcanic activity (see vol. 1, p. 83 of this Handbook).

Mining with vertical shafts is found only in Boekit Asem and in the private colliery at Rantaupadjang; the Oembilin field is worked from adits.

The transport of the coal to centres of consumption is naturally a major problem. The Borneo mines, and especially Poelau Laoet, have the advantage of being near the coast. The Boekit Asem coal must be transported by rail before shipment at Palembang, but can stand the high cost of transport by its superior quality. The Oembilin coal must be carried about 100 miles by rail to Emmahaven, the port of Padang, and then shipped to Sabang or ports in Java before it can be sold. Largely owing to the high cost of transport, the State mines have been working at a loss since 1925 or earlier. It is only when outside supplies are cut off, as by war, that the mines can be directly profitable; but they contribute indirectly to the wealth of the colony by guaranteeing a regular supply of fuel for steam transport by rail or sea. The coal from Boekit Asem is compressed into briquettes, which make excellent fuel not only for the State railways but also for warships. The Oembilin coal is used as dust in the manufacture of Portland cement at Padang, but is chiefly used in specially constructed boilers by local shipping.

Diamonds

Diamonds are found in sand and gravel deposits in river beds in Borneo. During the early years of this century there seems to have been considerable activity, which subsequently declined; but the operations were confined to Chinese and natives and the figures for output must be accepted with reserve. A company, the *Mij. tot Mijn-Bosch-en Landbouw Exploitatie*, obtained a concession for washing diamonds in Langkat, but it ceased operations in 1935. In that year it obtained 3,273 carats valued at f 54,504. Native workings yield less than a thousand carats, with a value of f 10 to 20 thousand.

Gold and Silver

Gold and silver are more important in legend than in fact, but from very early times Chinese miners have worked the deposits by primitive methods. Towards the end of last century there was a speculative boom which soon collapsed, leaving a few companies that worked on sound principles.

The chief centres are near the west coast of Sumatra, in the Manado peninsula in Celebes, and in Borneo. The gold occurs both in veins and in alluvial deposits, but the big concerns work exclusively on lode ore; dredging and the washing of gravel deposits have had little success.

Output of Gold and Silver (kg.)

Year	Gold	Silver
1900	428	2,292
1913	3,866	17,212
1925	4,147	75,172
1937	1,730	15,555

Source: *Statistical Abstract*, 1940, Table 78

Silver is found only in association with gold, and chiefly in manganese-silver ores. Formerly the government worked a field at Tambang Sawah in Sumatra, but this was closed in 1931 as being exhausted. In 1937 six companies were working in Sumatra, one in Celebes, and two in Borneo; Chinese and native workings in river gravels were confined to Borneo.

Iodine

Springs containing iodine are found in Soerabaja, Semarang and Rembang Residencies of Java. At one time there were four or more companies engaged in working this product, but in 1937 there were only two. The product is obtained in the form of copper iodide, and the total yield varies from 100 to 200 tons.

Iron

In many parts of the Netherlands Indies there are indications of iron-ore, notably in south-east Celebes, south-east Borneo and the Moluccas, where the available supplies are estimated at upwards of 500 million tons. Owing to the high cost of transport, extraction has not hitherto been feasible, and even the proximity of coal in south-east Borneo is unlikely to lead to a smelting industry, for it is

improbable that Tertiary lignite could be made to yield metallurgical coke.

Manganese

This was one of the first minerals to be exploited on modern lines. It is found in the Jogjakarta and Preanger districts of Java. Extraction began in 1894, and in 1897 the output exceeded 5,000 tons. In the succeeding years the output rose gradually and just before the economic crisis of 1929 was more than 20,000 tons. The Preanger ore is of poor quality and cannot stand severe competition or high freights, and prospects are discouraging. Practically all the ore is won on the concessions of the General Industrial Mining and Exploitation Co.; but there is a small privately-owned concession in the Djember district that yields a few score tons under favourable conditions.

Phosphates

Deposits of phosphates are worked in Java. This is a recent development carried on by the *Exploitatie en Handel Mij. voorheen F. Buning*, the chief firm in the business, with works in Cheribon. Another firm working phosphates is the General Industrial Mining and Exploitation Co., with a concession in Karangbolong. A considerable output has been obtained recently under prospecting licences in the Residencies of Buitenzorg, Cheribon, Bodjonegoro and Djapara-Rembang. In 1937 the total production was 26,167 tons.

Sulphur

Sulphur is largely used in Java for the refining of sugar. It is found in numerous volcanic craters, but especially at Kawah Poetih (= 'white crater') in Preanger, where it was at one time worked by the General Industrial Mining and Exploitation Co. This firm had to close down in 1931, owing to the collapse of sugar, but a contract with the government enabled the sulphur-works (Kawah Poetih Co.) to resume work in the old field. In 1937 the output was 9,048 tons of refined sulphur, 1,696 tons of sulphur powder, and 1,456 tons of mother-of-sulphur. A few hundred tons of sulphur are also won by the natives in the crater of Goenoeng Welirang, in eastern Java. The chief market is in Java and the Outer Provinces, but some is exported to India, the Persian Gulf and South Africa.

Salt

In most oriental countries salt is an important source of revenue, and the manufacture and taxation of salt at the beginning of the

Christian era is mentioned in the earliest historical reference to Java. The general principles that have guided salt administration in recent years are that imports should be restricted to fine table-salt and other special market varieties; that, apart from certain localities, manufacture should be prohibited except under licence from the government; that, so far as expedient, the manufacture and sale should be conducted solely by the government, with a view to supplying good salt on moderate terms and to making as much revenue as possible without discouraging consumption. The monopoly applied originally only to Java and Madoera, but has gradually been extended over the Outer Provinces. Formerly the manufacture was widely distributed, but since 1870 it has been practically restricted to Madoera (see vol. 1, pp. 196-7 of this Handbook). Almost all the salt comes from six coastal salt-pan areas, of which five are in Madoera and one on the adjacent mainland at Grissee; there are two large factories in Madoera for making and packing the briquettes. From these the salt is distributed to local agencies over the whole area covered by the monopoly. Salt is also manufactured for private sale on a few native fields of comparatively small importance; almost all these are in the Outer Provinces.

The process of manufacture is simple. Sea water is first led into the highest field in each holding. Thence it passes at intervals of a few days to lower fields, and the brine gradually becomes more concentrated by evaporation. Finally it reaches the crystallization pan where it is allowed to stand for twenty days. The salt is then spread out on a mat of split bamboo, washed and left for ten days to drain. When the salt is dry, the owner obtains from the field manager, who watches the operations on behalf of the government, a Transport Pass, for taking the salt to be stacked. Each man then piles his salt in a separate heap round the entrance to a palisaded square. Here it is transferred to standard measures, and the owner is credited with the amount received. Within the palisade the standard measures are poured out and built up into a high stack which, with coolies of both sexes continually running up and down, looks rather like a colossal anthill built of salt. From these stacks it is transferred into warehouses, formerly of timber with thatched roofs, but now mainly of galvanised steel. In the warehouses the salt is stacked for at least four years, during which there is a normal reduction by drying of 10 to 13%.

At the end of about four years the salt is ready for transfer to the compression factory. It is first separated from the remaining mother liquor in centrifuges and then falls through semi-automatic funnels

into the press. The pressed blocks are then dried in an oven and passed on to the packing department. From the despatch godowns the salt for Java is loaded on to trucks of the Madoera Steam Tramway, and that for export is sent by a light railway, owned by the factory, to the local wharf.

The following table shows the production during recent years.

Salt Production (m. tons)	1929	1934	1936
<i>State Production</i>			
(a) State land	82.8	12.7	10.8
(b) Private land	404.1	69.7	80.4
State imports	.5	—	—
<i>Private Production</i>	27.2	10.8	16.2
Total	514.6	93.2	107.4

Source: *Statistical Abstract*, 1940, Table 77.

It fell off sharply during the depression but was beginning to recover in 1936. In 1937, however, the State took over the native salt-pans in Madoera, and work was temporarily stopped on the largest fields, with a view to reorganization. The total consumption of salt-reached a high level between 1928 and 1930 when it exceeded 200 thousand tons a year. Of this rather less than 30 thousand was taken for fish-curing and industry. In 1934, the consumption fell to 154,485 tons, but since then has gradually recovered.

BIBLIOGRAPHICAL NOTE

A general account of the mineral resources of the Netherlands Indies is given in C. G. S. Sandberg, 'The Mines and Minerals in the Netherlands East Indies Archipelago' *Asiatic Review*, vol. xxvi, pp. 28-36, 243-56 (London, 1930), and in H. Foster Bain, *Ores and Industry in the Far East* (New York, 1933). The regulations controlling mining and its administration are described by P. Kleintjes in the two volumes of *Staatsinstellingen van Nederlandsch-Indië* (s' Gravenhage, 1931).

Chapter IX

INDUSTRY

Native Industries: European Industries: Power: Bibliographical Note

NATIVE INDUSTRIES

At one time, native agriculture and native industry provided for almost all the requirements of the people. Their wants were very simple and were satisfied by the manufacture of silk and cotton garments and the fashioning of weapons, tools and jewellery. During the nineteenth century, imported manufactures ousted local products and native activities were increasingly restricted to agriculture.

The war of 1914-18 and the world economic depression both caused a great reduction in imported manufactures and helped to bring about a revival of native industry, both in the home and in small, government-sponsored factories. These native industries are mainly domestic and are practised on a small scale in the intervals of work in the fields; the majority are to be found in every village and supply most of the native requirements in clothing, foodstuffs, houses and furniture. With a native population of about sixty million these industries, though individually insignificant, are of considerable importance from a quantitative point of view. The methods employed have, in general, changed little since before the arrival of the Europeans and the products vary in quality according to the skill of individual craftsmen. Only a few commodities manufactured by natives are exported, or are otherwise of more than local importance. The chief among these are batik, cigarettes, and hats.

Batik

The batik industry is centred in Midden-Java, though it is now carried on in other parts of Java and also in parts of Celebes and Sumatra. It is typically a home industry, though small factories have been established by the government. In spite of this tendency towards large-scale manufacture, factories with over eighty workers produce no more than 8% of the total output of batik.

The process is one of making coloured patterns on cloth which is

either imported or manufactured in European factories in Java. The fabric to be treated is first washed and then heated in rice water, sometimes mixed with lime or bamboo leaves, in order to prevent the wax penetrating too deeply. It is then hung up on a rack, the pattern is drawn on it with charcoal, and all the parts which are not to be



Fig. 58. Batik-working in Java

Batik-working is a method of producing coloured designs on cloth (Plates 54, 55). Representations of plants, birds or butterflies usually form part of the complex designs.

Based on a photograph.

coloured with the first dye are coated with a mixture of beeswax and a little resin. The wax is heated in an iron pan on a chafing dish with glowing charcoal and is applied to the cloth by means of a *tjanting*, a brass vessel with one to four fine spouts. Both sides of the cloth are treated in the same manner and, when the wax has hardened, the fabric is immersed in a vat of indigo. When the dyeing in indigo is finished the fabric is washed, the wax removed from the parts which are to take the second dye and the remainder covered with wax. For the second dyeing a reddish-brown colour called *soga* is used and occasionally other colours are added later. The whole process takes fifteen days for the best quality batik, though an inferior type can be produced in a shorter time (Plates 54, 55).

Cigarettes

The manufacture of native straw cigarettes increased rapidly between 1933 and 1937, the value of the output rising from about



Plates 54 and 55. Ancient Javanese batik work



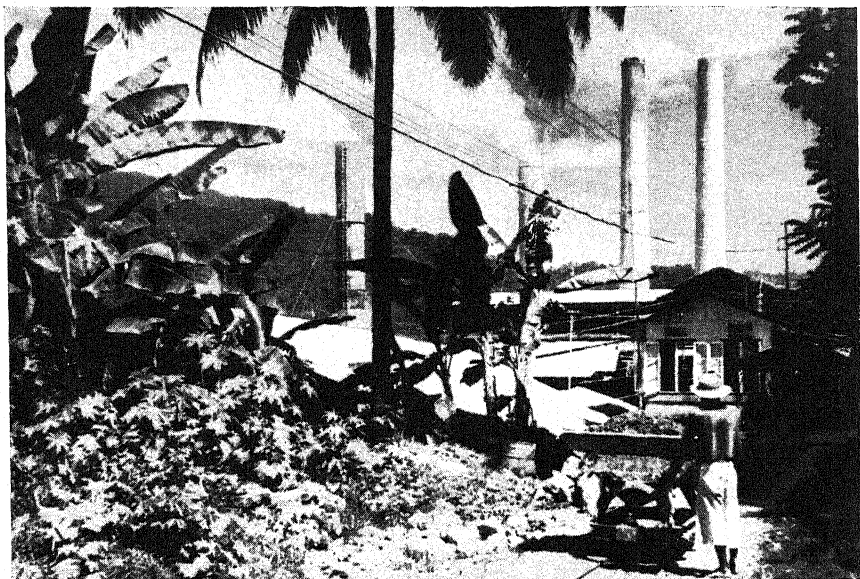


Plate 56. Portland cement factory at Indaroeng near Padang

This is a government-owned factory with an output of over 200,000 tons of cement a year. The aerial ropeway runs to Boekit Poetoes, on the railway near Emmahaven (see p. 438).

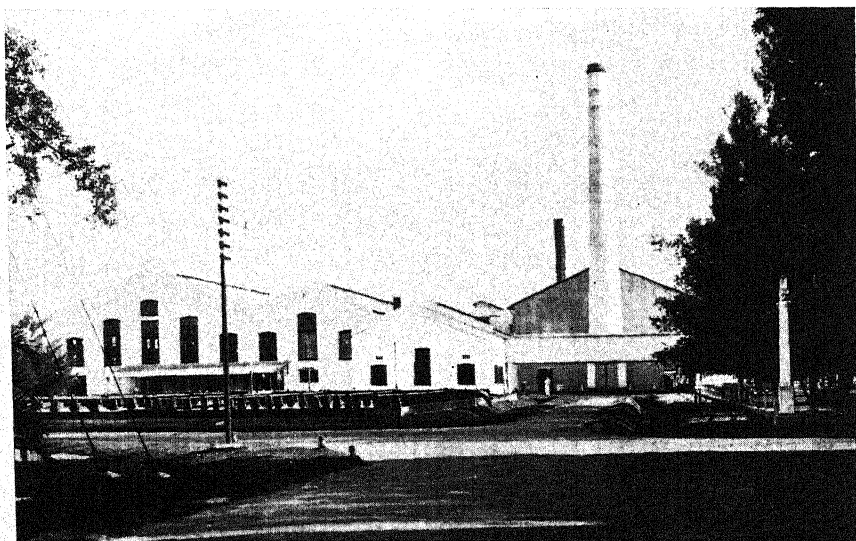


Plate 57. Sisal factory, Soekamandi

f 1 million to nearly f 9 million. The industry is carried on in small factories as well as in the home. Early in 1942 there were sixty-nine of these factories, sixty-five of which were in Midden- and Oost-Java. The cigarettes are all hand-rolled and are flavoured with cloves or scented with various vegetable products.

Hats

Hats are made from plaits of *pandan* (*Pandanus*) leaf or bamboo. The plaits are shaped by means of a special plank with a circular hole which fits the crown of the hat, and stitched to each other. The material may be coloured before plaiting by boiling with vegetable extract or aniline dyes. The main centre of hat making for export is Tangerang in the Residency of Batavia, where the industry is under the direction of a French firm. Other centres of lesser importance are in the Bantam and Preanger Residencies.

EUROPEAN INDUSTRIES

The nineteenth century saw the beginning of European industry in the Netherlands Indies, notably in sugar factories, rice mills and other enterprises concerned with the preparation of agricultural produce for both the home and foreign markets. At the end of the century when the 'diminishing welfare' of the people of Java became a matter of general concern, it was thought that greater industrial development might bring about an improvement in their economic position. The speed with which industrialisation has proceeded has depended greatly on economic conditions. Little was attempted during the prosperous years before 1914, but interest revived during the war of 1914-18 when the Netherlands Indies had to produce many goods previously imported. With the restoration of normal conditions, industry was again neglected until the loss of foreign markets and the consequent inability to import manufactured goods during the economic depression of 1930-37 forced the government to encourage industry more actively than ever before.

The World Economic Depression (1930-37)

The first effects of the depression were so severe that the whole economic system threatened to collapse; temporary adjustments were made in an attempt to keep the existing system working. Towards the end of 1931, the yen was devalued and Japanese imports flooded the market to such an extent that the government was compelled to abandon the tradition of economic freedom and to take

steps for the protection of Dutch interests. This was followed by a more fundamental readjustment of economic life when it was realized that many of the new features were permanent.

European industry at first received a severe set-back, but soon the lack of opportunity for investment and the fall in wages stimulated the establishment of new industries; these aimed primarily at replacing imports which were no longer available, notably beer, biscuits, chocolates, cigarettes and mineral waters. Japanese imports threatened the existence of these newly established industries, until the government adopted a policy of restricting the import of certain commodities. This assurance of government support and protection led not only to a further development of local industry, but also to the establishment of new factories in the Netherlands Indies by foreign firms which took advantage of the cheap labour available, and at the same time saved on freight charges and import duties. This new industrial development was so keenly competitive that the government passed an Ordinance for the Regulation of Industry in 1934, which made an official permit necessary for the establishment of new enterprises or the expansion of old ones.

Processing of Agricultural Produce

Sugar

Sugar-growing is carried on mainly in Oost-Java and to a lesser extent in Midden-Java (see p. 190 and Fig. 37). With few exceptions, each estate has its own factory; in 1937 there were forty-four factories working in Oost-Java, fourteen in Midden-Java, and six in the Cheribon Residency of West-Java, making a total of sixty-four. The number of factories and estates declined rapidly between 1931 and 1934, as a result of the economic crisis and the restrictions on export imposed by the government (see p. 311). In 1931 there were 178 estates with factories and sixteen without; by 1937 only three estates without factories remained. The largest sugar factory is that at Djatiroto near Loemadjang in the plains south of the Ijang-gebergte, where the cane is brought in from the surrounding estate by an extensive Décauville railway system. At the time of the cane harvest or 'campaign' the sugar industry gives employment to about a million native workers.

Rice

Since rice is the most important single foodstuff for the native population and occupies a large part of the cultivated area in Java (see

p. 182 and Fig. 33), mills for husking the grain are very numerous. At the time of the Japanese invasion in 1941 there were 1,040 rice mills in operation and these employed nearly 27,000 workers.

Cassava

Cassava products—tapioca, manioc meal, flour and factory waste—are manufactured both in factories and on a small scale by natives. The output from the factories is of considerable importance in the export market, but the native product is of a low grade and is for local consumption.

There are about two hundred factories engaged in the industry; their distribution is shown in the following table:

	<i>Tapioca factories</i>
West-Java	130
Midden-Java	53
Oost-Java	35
Sumatra	2
Total	220

Only three of these factories are large. The chief products in 1941 were about 165,500 tons of tapioca flour and 34,500 tons of manioc meal. The other cassava products were manufactured on a smaller, though still considerable, scale. The industry employs about 7,500 workers.

Foodstuffs and beverages

Dairy Produce

There is a considerable dairy industry in Java, where there are thirty-five factories turning out butter, cheese, cream, buttermilk and yoghurt. The majority of the factories are in West-Java, where there are thirteen, though the factory at Bandoeng is the only really large one. There is in addition a great production by small enterprises.

Chocolate and Confectionery

There is a large chocolate factory at Soerabaja and two other confectionery factories which are also large. There are in addition twenty-one other factories producing confectionery in Java and a great production by small firms. The number of workers employed in the twenty-four factories was about two thousand in 1941.

Ice

Nearly every town in the Netherlands Indies has an ice factory, and in 1941 the total production was 240,031 tons. In the same year

nearly 2,500 people were employed in the ice factories; the distribution of these factories is shown in the following table:

	<i>Ice factories</i>
West-Java	34
Midden-Java	37
Oost-Java	39
Sumatra	63
Borneo	22
Groote Oost	34
	<hr/>
Total	229
	<hr/>

A number of ice factories also manufacture mineral waters as an integral part of their business.

Beer and Alcohol

There are two large breweries in Batavia and Soerabaja and five smaller establishments also in Java, which produce other alcoholic beverages. There are in addition three large factories and one small one which produce 95% alcohol. One of these is equipped for the production of absolute alcohol.

Miscellaneous Foodstuffs

Bread, biscuits and pastry are made in over one hundred factories scattered throughout the islands, and there are in addition numerous small enterprises. Six factories in Java manufacture preserved food, the chief kinds being vegetables, fruit, meat, fish, jam and soup. The output was a little over one thousand tons a year, but the production by small concerns was a hundred times as great.

Textiles

Cotton Spinning and Weaving

The largest spinning centres are Semarang and Tegal—the former has 18,000 spindles and the latter 15,000. Another spinning mill was in course of construction in 1941 at Demak.

There are altogether two hundred weaving factories, the bulk of which are in Java:

	<i>Weaving factories</i>
West-Java	86
Midden-Java	62
Oost-Java	44
Sumatra	5
Groote Oost	3
	<hr/>
	200
	<hr/>

At Tegal there are about 10,000 hand looms and weaving is largely a cottage industry built up around a central factory organization. The other large factory, at Garoet, has 1,200 mechanical looms and produced in 1937 over sixteen million square yards of low grade cotton fabric. The two hundred factories have altogether about 9,700 mechanical looms and 23,400 hand looms and employ over 50,000 workers.

Heavy Textiles

Heavy textiles, including ten million gunny-bags, are manufactured in five factories in Java. Two large factories use rosella almost exclusively, while jute and sisal are also used in the others. All the fibres, except for cotton yarns, are grown in the Netherlands Indies. Rather over three thousand workers are employed (Plate 57).

Ready-made Clothing

Nine factories, all in Java, employ about two thousand workers and use imported cotton fabrics. Small enterprises, which employ about 90,000 workers, make a more important contribution to output than the larger concerns, as in many industries in the Netherlands Indies.

Oils

Vegetable Oils

Many of the factories for the extraction of oil from copra, peanuts and other seeds are attached to the plantations where the crops are grown. There are, however, a certain number of independent factories which buy the oil seeds mainly from the native grower. There are in addition three margarine factories. There are over a hundred factories dealing with vegetable oils, the great majority of which are in Java; about seven thousand workers are employed.

Essential Oils

The manufacture of essential oils, though not a large industry, is of importance because a considerable proportion of the world supply of citronella oil is provided by the Netherlands Indies. There are 528 factories engaged in the industry, but these are generally small-scale concerns. All but seventeen of the factories are in West-Java. The production of citronella oil in 1941 was about 2,500 tons; 1,100 tons of this came from the factories and the remaining 1,400 tons from small producers.

Rubber

The most important of the rubber firms in the Netherlands Indies is the Goodyear Tyre and Rubber Co., Ltd., with branches at Weltevreden, Soerabaja and Semarang. It has a capacity of 144,000 to 216,000 motor tyres, 360,000 tubes and 3,000,000 bicycle tyres per year. The remaining fourteen factories, seven of which are in West-Java, are on a smaller scale and manufacture rubber shoes and hose-pipe, as well as small quantities of other products.

Chemicals

The chemical industry is on a small scale and of local importance only.

Quinine is extracted from cinchona bark at the Bandoeng factory, which was founded in 1896. The output of the factory in 1937 was about 400,000 lb. of quinine.

Opium, which is a government monopoly, is manufactured at a factory in Batavia.

Sulphuric acid is manufactured in four plants, the one at Balikpapan being associated with the oil refinery.

Oxygen, nitrogen, carbon dioxide and other gases are manufactured at six factories in Java and one in Sumatra. The three largest are at Tandjoengpriok, Bandoeng and Soerabaja. The total output in 1941 was 1,674 tons.

Cement is manufactured in sixty-two factories which employ nearly six thousand workers. The largest factory for Portland Cement is at Indaroeng near Padang. This is government-owned and had an annual output of nearly 215,000 tons in the years immediately preceding the Japanese invasion in 1941 (Plate 56).

Engineering

Railway Repair Shops

There is a total of twenty-three railway repair shops with about six thousand employees. Details of these are given in Chapter xv.

Machinery

There is a considerable production of agricultural machinery, bridges, and other engineering works, particularly in Java, and to a lesser extent in Sumatra and Borneo. Over ten thousand workers are employed in sixty-eight factories. There are also six factories making metal drums all but one of which are incorporated in refineries or rubber factories.

Shipbuilding

There are two large shipbuilding firms, one in Soerabaja and the other at Tandjoengpriok. These have in recent years produced small vessels for the *Koninklijke Paketvaart Mij.* for use in the inter-island trade. There are fourteen other firms which build smaller craft and, together with the two large ones, undertake repairs.

Miscellaneous Industries

Though most of the brick-making in the Netherlands Indies is on a small scale, there are a number of factories in Java and Sumatra which produce both machine-made and hand-made bricks and tiles. There are six potteries, all in the western half of Java, which supplement the large production by natives (Plate 58). There is a government paper factory at Padalarang. The considerable native production of cigarettes is supplemented by that of a number of small factories and three large ones at Malang, Cheribon, and Soerabaja.

Among the more important of the miscellaneous industries is the manufacture of cases, barrels, furniture and other wooden articles. The timber for this industry is supplied by over a hundred sawmills. The sawmills and factories using wood employ more than eight thousand workers.

In the leather industry, there are nineteen tanneries with mechanical equipment, as well as many small unmechanized ones. Six firms in Java are concerned in the manufacture of purses, bags, trunks and saddles; a further ten factories produce footwear. These firms employ nearly three thousand workers and there are in addition about ten thousand people in small establishments.

Java is well supplied with printing offices which undertake all types of work:

	<i>Printing offices</i>
West-Java	91
Midden-Java	72
Oost-Java	63
Sumatra	45
Borneo	3
Groote Oost	10
Total	<hr/> 284 <hr/>

These works employ over fifteen thousand workers.

POWER

Steam Power

The substitution of mechanical for manual production in the Netherlands Indies was retarded by the abundance of cheap labour, but during the last half of the nineteenth century the steam engine came into general use in the sugar factories. The progress in the use of steam power during the present century is illustrated in the table, which gives figures for the number of boilers used in private industry, excluding ships, locomotives, and government enterprises.

No. of Boilers used in Factories

Year	Java		Outer Provinces
	Sugar	Others	
1900	1,125	794	837
1910	1,291	1,284	804
1920	1,298	1,905	1,307
1930	1,307	2,755	2,410
1937	672	1,975	1,806

Based on official sources.

This table serves as an index to the growth of industrialization during the present century, until checked by the economic depression (1930-37), and it shows the rapid development of the Outer Provinces. In considering the figures, however, it should be remembered that since the war of 1914-18 there has been an increasing use of petrol engines and of water-power and electricity, so that the actual progress in the use of power has been far greater than they indicate.

Electric Power

It has been estimated that about six and a half million horse-power is available from the waters of the Netherlands Indies. This is very unevenly distributed, and in Java, where most power is needed, there is little more than half a million, whereas Sumatra and Borneo each have about two million, Celebes about one million and the remaining islands altogether about one million. In these circumstances the conservation of water power in Java is a matter of importance and the government has taken into its own hands the exploration, survey and development of this source of power. For this purpose a special section of the Public Works Department was constituted in 1917 to deal with water power and electricity. The general policy of the

government is to reserve as much power as is necessary for general lighting, railways and other public services, and to place the surplus at the disposal of private enterprise. A survey of water power is maintained, with numerous observation stations in Java and some in Sumatra and Celebes.

Permits for small waterworks of less than 100 h.p. and of a temporary character may be obtained from the Public Works Department; concessions with a larger horse-power capacity require an application to the Governor-General, and usually run for forty years. Electricity licences for public utilities are granted for a fixed period not exceeding forty years; licences for industrial, commercial, or other private purposes are terminable at notice.

With a view to the economic utilization of the available supply, the larger sources for the generation of electric energy are mostly retained by the government, while the distribution is entrusted either to joint companies, in which the government works jointly with private capital, or to private companies or local authorities.

In 1939 the installed capacity was approximately 200,800 kW, over half of which utilized water power. Only in Sumatra, where there are good local supplies of coal, did thermal power stations account for a large part of the total electricity production.

Electric Power Stations

(Installed capacity kW)

	Water	Steam	Diesel	Total
Java and Madoera	105,359	22,298	18,968	146,625
Sumatra	2,165	37,573	5,206	44,944
Borneo	—	300	3,091	3,391
Celebes	30	2,500	1,706	4,236
Other islands	20	—	1,588	1,608
Total	107,574	62,671	30,559	200,804

Based on official sources.

In Java and Sumatra there were twenty-four generating stations and in addition numerous small installations in factories and on estates throughout the archipelago. Of the twenty-four power stations nine had a capacity of more than 10,000 kW; details of these are given in the following table:

Electric Power Stations with a capacity greater than 10,000 kW.

Stations	Total capacity	Method of generation
<i>Java</i>		
Lamadjan (near Bandoeng)	19,200	water
Oebroeg (near Soekaboemi)	11,200	water
Kratjak (near Buitenzorg)	11,000	water
Mendalan (Kali Konto)	16,500	water
Simau (near Ponorogo)	10,800	water
Semampir (Soerabaja)	13,000	steam
Soerabaja	12,300	steam
Keting (near Loemadjang)	10,500	water
<i>Sumatra</i>		
Mantoeng (for Bangka tin mines)	12,000	steam

Based on official sources.

The general practice is generation of a three-phase alternating current of 50 cycles per second at 6,000 volts. This is stepped up to 70,000 volts for transmission to the electrified portions of the Java railways and to the large consuming centres, where it is stepped down to 6,000 volts for primary distribution and to 220/127 and 190/110 volts for secondary distribution by the four-wire system.

The power station at Oebroeg supplies the towns of Batavia, Buitenzorg and Soekaboemi, and the electric railway from Batavia to Buitenzorg. The power station at Kratjak links up with this system at Buitenzorg. Other stations at Bengkok, Plengan and Lamadjan generate power for the towns of the Bandoeng basin. The stations in Oost-Java and those in Sumatra each supply one area, with, in general, little interconnection.

Current consumption in 1939 was 332.4 million kW and 60% of this was used by the following eight towns:

Town	Current (million kWh)
Batavia	57.8
Soerabaja	53.3
Bandoeng	45.9
Semarang	17.9
Malang	13.1
Medan	8.0
Palembang	5.5
Padang	4.2

The consumption of current was increasing rapidly in the years before the Japanese occupation in 1941. In 1935 it was 237 million

kWh or nearly 100 million less than in 1939. The current consumed in 1935 was divided as follows:

Utilization of Current in 1935

(million kWh)

Lighting	135
Mining	54
Industry	12
Traction	10
Loss in transmission	26
	<hr/>
Total	237

The total number of consumers in this year was only 206,300, of whom 165,500 were in Java and Madoera.

BIBLIOGRAPHICAL NOTE

There is a great scarcity of published information about the industries of the Netherlands Indies, and particularly about their location.

A certain amount of information is available in the Department of Overseas Trade Report, *Economic Conditions in the Netherlands Indies* (London, 1938), and in the *Indisch Verslag*, vol. 11 (Batavia); the latter is an annual publication.

A directory of firms in the Netherlands Indies, *Handboek voor Cultuur-en Handelsondernemingen in Nederlandsch-Indië* is published annually at Amsterdam.

Chapter X

LABOUR

Introduction: Labour in Java: Labour in the Outer Provinces:
Trade Unionism: Bibliographical Note

INTRODUCTION

Throughout the Netherlands Indies labour problems are mainly connected with the employment of Eastern labour by Western capital, but in other respects there is a striking contrast between the problems of Java and those of the Outer Provinces. In Java there is a surplus of labour, employment is mostly seasonal, and chiefly in factories or plantations. In the Outer Provinces there is a shortage of labour, employment is continuous, and there are few factories, but much of the labour is employed in mines. In Java there is a larger proportion of European labour, with a corresponding development of trade unionism. The most important single factor in this divergence was the Culture System,^F which opened up Java as a plantation area, created a vast supply of free labour, trained natives and Europeans to co-operate in production, and attracted men of enterprise from the Netherlands.

Under the Dutch East India Company, labour in private employment, mostly domestic or agricultural, was performed by slaves; labour for the government was compulsory and unpaid. Although true slavery existed, the normal form was debtor-bondage; most of the slaves were people who had made themselves over to their creditors for debts that they could not discharge, and they could at any time recover their freedom on payment of their liabilities. In 1818 the slave trade and importation of slaves was forbidden. The new Constitution of 1854 forbade the public sale of slaves, provided for the abolition of slavery from 1860, and prohibited debtor-bondage in Java. In 1872 steps were taken towards the gradual abolition of debtor-bondage in the Outer Provinces.

Regulation of Labour

The prevalence of slavery prevented the growth of customs governing the relations between masters and free servants, and, with

its decline, protection was given to the masters by imposing a penal sanction for the breach of service agreements. Such a penal sanction, found originally in the local regulations of 1829 for Soerabaja, was gradually extended over all the areas of European settlement. In 1872 the various local regulations were superseded by a general Police Regulation, which incorporated the penal sanction clauses. Owing, however, to Liberal protests in the States-General, these clauses were repealed in 1879. By this time employers in Java no longer needed special legislation to protect their interests, as there was an abundant supply of labour already accustomed to serve Europeans for wages, and from about 1880 the centre of interest in labour problems shifted to the Outer Provinces.

An elaborate organization has grown up for supervising the conditions of employment and the enforcement of regulations. It deals both with indentured labour and with free labour. An Inspector of Labour was first appointed in 1904 for the Oostkust Residency of Sumatra, the region of the plantations. In the following year a Factories Ordinance was passed to bring under control the rapidly increasing number of factories in Java. In 1908 the Inspector of Labour was charged with the supervision of recruiting and of the general working of the Coolie Ordinances. The inspectorate grew with the expansion of its activities, and in 1921 it was reorganized as a special service in the department of justice. The head of the service presided over the Labour Office, which comprised four sections: Legislation and Statistics; Security, including factory inspection; Trade Unions; and Labour Inspection in the Outer Provinces. Linked up with this are the Permanent Commission of 1925 and the Immigration Chamber of 1930, both mentioned above. Up to 1930 labour inspection in Java was dealt with in the section for Legislation and Statistics, but in that year a new section with four inspectors was constituted in Java.

One important duty of the Labour Department has been to fix and enforce minimum rates of wages. So far back as 1829 there were suggestions for the protection of wages, but under the Culture System the government was interested in keeping wages down, and until almost the end of the century low wages were regarded as a prime factor in the wealth of Java. The first effective measure for the protection of wages was the ordinance of 1898 dealing with the sugar factories. Subsequently rates of wages were fixed for indentured coolies. In the *cultuurgebied* of Sumatra the minimum rate was put at 42 cents per day for men and 37 for women. The normal rates have

ordinarily been higher, and in 1930 plantations in Sumatra were paying 57·5 cents to men and 44 cents to women; as the coolies also received cheap food, housing and medical attention, the real wages were much higher, and were estimated at 67·5 cents for men and 54 for women. The world economic depression reacted on wages, which in 1934 fell to 48 cents per day for men and 30 for women, but they rose again as the depression lifted. In Java, living is cheaper and wages run lower; before the depression the sugar factories paid 46 cents to men and 37 to women.

The inspectors also attend to all matters concerning the welfare of the employees. The regulations, both for indentured and free labour, insist on satisfactory conditions. Many estates pay great attention to hygiene, and provide good hospitals for the coolies and schools for their children; but on others the employees are less fortunate. This is especially the case under Chinese employers, whose ideas on hygiene differ from those of Europeans, and who look on regulations for the welfare of the coolies as restrictions to be circumvented rather than obeyed. On some estates employees are apt to be defrauded of their wages by dishonest practices in the estate shop, maintained nominally for the benefit of the coolies, and the management of these shops requires special attention. Infractions of the regulations are numerous also in connection with the employment of children, and of women on night work. The *panglongs* or timber mills in the Oostkust, Djambi and Riouw Residencies also require close supervision. These are owned by Chinese; in the large concerns Chinese only are employed, although in the smaller there is a majority of Malay coolies.

LABOUR IN JAVA

Cultivation was the most arduous of the services required by the government in the first half of the nineteenth century, and the demand for it was carried to extreme lengths under the Culture System, when the village headman was expected to furnish both land and labour for government plantations. Peace and order were rigorously enforced, the people enjoyed sufficiency and security, and there was a rapid growth of population, consequently there was a large supply of labour seeking employment. Some agricultural work for the government was unpaid, being regarded as an alternative to taxation, but much of it, although compulsory, was paid. In the factories and plantations managed by Europeans on behalf of the government, the payment of wages was general, and the natives thus

became accustomed to wage service for Europeans, while the Europeans gained experience in the handling of Oriental labour. With the Liberal reaction against the Culture System, planters took over the estates and factories from the government; but they still obtained land and labour through the village headman, who exerted his authority on their behalf as he had done previously for the State. The Agrarian Law of 1870, which marked the effective introduction of Liberal policy, was meant to encourage private enterprise while protecting native interests. It related primarily to land, but the peasants who leased their land for the cultivation of sugar-cane were also the labourers in the plantations and the factories. The law proved inadequate for the protection of native interests, and was amended in 1895 and 1898 by new regulations intended, among other things, to remove abuses consequent on the granting of advances by planters to their employees.

Special problems in connection with agricultural labour are found on land obtained on lease from native rulers, or held in private ownership. Under both forms of possession the relation between the landholder and the cultivator is nominally one of landlord and tenant, but in practice it is one of employer and employee. On the private estates the owner, as the representative of the government, has the right to demand compulsory labour from the occupants. In 1931 a proposal for the abolition of this right was rejected on the ground that f 11 million would have to be paid in compensation, and that the acquisition of such private estates by the government was preferable.

Apart from cultivation the requirements for compulsory labour fell under three heads: free services to officials (*panijendiensten*); free labour on public works (*herendiensten*); and free labour for village amenities (*desadiensten*). With the economic development of Java these compulsory services became an obstacle to progress. Not only was unpaid compulsory labour inefficient in comparison with wage labour, but villagers working under compulsion could not be employed far from their homes, whereas the various public works required temporary concentrations of large supplies of mobile labour; moreover, work for the government reduced the supply of free labour available for private employers and tended to raise wages. Economic conditions required therefore the substitution of free labour for compulsory labour.

Paid labour was employed by the government for the first time in 1849 on the harbour and defences of Soerabaja. From that time onward the payment of labour became general so far as funds

allowed, though little money was available because of the employment of compulsory labour in lieu of taxation. In 1882, however, a capitation tax was introduced; the proceeds were applied in the first instance to the commutation of *pantjendiensten*, but a surplus remained available for public works that could not conveniently be carried out by *herendiensten*. From 1890 the government allowed the villages to buy off their *herendiensten* liabilities for a period of five years, and from 1902 remitted, without further payment, all *herendiensten* in Java, apart from the native states, where they have subsequently been reduced, commuted or abolished. Thus within the area under direct rule in Java the end of the nineteenth century saw the abolition of all compulsory services except *desadiendiensten*. Both in private and in public employ free labour was general. Measures taken subsequently for the protection of labour are described below.

LABOUR IN THE OUTER PROVINCES

The repeal in 1879 of the penal sanction clauses of the Police Regulation created a difficult position in those parts of the Outer Provinces where economic development had made most progress. Apart from mining districts, in which the chief employer was the government, the main centre of economic progress was the Oostkust Residency of Sumatra. Here the tobacco plantations, which had grown up rapidly since 1863, employed thousands of Chinese coolies, who were imported at considerable expense, were often of bad character, and were of little use to their employers for some time after their arrival; if they broke their contract, the employer had no effective remedy at civil law. It was chiefly to meet these difficulties that a Coolie Ordinance for the Oostkust Residency of Sumatra was published in 1880. During the next few years similar ordinances were successively applied in other parts of the Outer Provinces. Their general effect was that indentured labour should be recruited only under a contract registered before a government official, and labour so recruited was liable to summary penalty for wilful breach of contract or for idleness. The primary object of these ordinances was to give employers adequate control over their coolies; but the effect was to place the coolies at the mercy of their employers, and this led to serious abuses. About 1900, with the transition in Dutch colonial theory from the 'Liberal' to the 'Ethical' standpoint, exposures in parliament and in the press of the conditions obtaining on the plantations gave a new turn to labour policy; previously it had been directed mainly to

securing for employers an adequate supply of docile labour, but now it turned towards ensuring protection for the labourers.

The chief measures for dealing with the labour problem fall under three heads: the supervision of recruitment; the abolition of the penal sanction; and the more precise regulation of the duties of employers and employees, together with machinery for enforcing the regulations.

Recruiting of Labour

When labour conditions in the Outer Provinces first began to attract attention, the coolies, not only in the mines but also in the plantations, were predominantly Chinese; in early days in east Sumatra, out of some 4,000 imported coolies all but 150 were Chinese. The coolies were supplied at so much a head by professional recruiters, who cared nothing about the character of the men supplied or about their subsequent welfare. By about 1900 this system was being extended to Java, where coolie agents advertised their ability to export shiploads of 'prime quality labourers, carefully selected, sturdy, young, physically sound and strong'. The agitation for better conditions led to the practice of recruiting the Chinese coolies through official agencies in Singapore or Swatow, and in 1909 the government introduced regulations for the control of recruiting in Java. Under the latter regulations, professional recruiting agents in Java were required to obtain a licence and to deposit security; no emigration was allowed except under contract; all contracts had to be signed before an official; medical inspection was obligatory before embarkation; and the shipment of coolies was restricted to Batavia, Semarang or Soerabaja. These successive measures for the better supervision of recruiting encouraged the planters to take the matter into their own hands instead of engaging coolies through professional recruiters. The movement started in 1915 with the Deli Planters Association (D.P.V.) which subsequently combined with the General Association of Rubber Planters of East Sumatra (A.V.R.O.S.) to establish the General Deli Emigration Office in Java to recruit coolies for the East Coast. The South Sumatra Agricultural and Industrial Association followed this example in the recruitment of coolies for south Sumatra. Gradually, however, the planters have turned rather to encouraging the re-engagement of old hands (*laokeh*), and to seeking recruits by the voluntary emigration of fellow villagers whom the *laokeh* brings with him when returning for a further period of service. Some plantations have tried to create a local supply of free labour by allotting house sites and land to married coolies with the

object of forming labour colonies, but this policy is criticized as tending to make the men work less regularly because they are less dependent on their wages. Professional recruiting was prohibited in 1930, and in the same year an Immigration Chamber was established at Medan to prevent the enticement of coolies by rival employers.

Reform of Labour Conditions

The prevalence of abuses on the plantations was ascribed in the first instance to laxity in legal administration, and for the better enforcement of the law a Court of Justice was established at Medan, the headquarters of the *cultuurgebied*. But so long as the contracts contained a penal sanction the enforcement of the law helped the employer rather than the coolie. Reformers turned therefore, especially after 1909, towards securing the abolition of the penal sanction. Even where the contract contained no penal stipulations the coolies were liable to ill usage, and for the protection of such coolies the government in 1911 published the so-called 'Free' Labour Ordinance of 1911. This guaranteed them regular wages, suitable accommodation, adequate sustenance and a free passage home, and thus ensured them as good terms as labourers engaged under the Coolie Ordinances. 'Free' labour is often contrasted with 'contract' labour; but in fact 'free' labour is ordinarily engaged on a written contract, and the real distinction is that free or voluntary labourers are not liable under the penal law for a breach of the agreement. Proposals for the abolition of the penal sanction, however, were strenuously resisted, as the government thought it essential to efficient management even on its own tin mines and other enterprises. The matter came to a head in 1924, when a measure was laid before the States-General with a view to replacing the Coolie Ordinances by a legislative enactment. The preamble to this bill justified penal sanctions on the ground that local circumstances rendered civil process ineffective, but an amendment was accepted to the effect that the situation should be reviewed every five years with the object of eliminating the penal clauses. For this purpose a Permanent Commission for the Study of Labour Problems was constituted at Medan in 1925, with the special function of advising the government when the problem should be due for reconsideration.

Accordingly in 1930, the government laid a new Ordinance before the Volksraad. By this time plantation labour had assumed a new character. It was no longer mostly alien, temporary, and recruited by irresponsible professional recruiting agents, but much of the labour

was Javanese and exempt from penal liabilities, and the relations between the employer and employee have become more permanent and human. The new measure aimed at encouraging these tendencies. As finally passed it required concerns of ten years' standing to employ at least 25% of free labour from January 1932, rising to 60% from 1936; firms of less than ten years' standing were allowed a longer period of grace. Employers were permitted to make their own choice as between foreign labour and native, male and female, old and young; and those with more than one concern could treat their whole business as a single unit. Failure to comply with these conditions would entail forfeitures of the right to make further contracts with a penal sanction, and for contumacy existing contracts might be annulled. This ordinance was generally applicable in all the Outer Provinces in place of the local ordinances previously in force, and it consolidated and improved the regulations on food, holidays, accommodation and medical attention. It also required that employers should provide married coolies after five years' service with a house and garden.

Almost at the same time the Blaine Amendment to the United States tariff law of 1930 prohibited the importation of the products of labour employed under contracts with a penal sanction, unless they were products which could not be produced in the requisite quantities in the United States. This threatened the Deli planters with the loss of a valuable market for cigar wrappers, and they announced their intention of abandoning their right to apply the penal provisions of the new ordinance, and of recruiting all their labour on a voluntary basis. This was not very convincing as a moral gesture, for, owing to the depression, there was a surplus of labour on the estates; but it satisfied the conscience of the reformers and the customs regulations of the United States. Penal provisions were also renounced in respect of the coolies, mostly Chinese, in the tin mines of Bangka and Billiton. In 1932 the Ordinance of 1930 was amended by a clause providing that the passages relating to a penal sanction should not apply to employers who expressly forewent their rights to impose such sanctions. It appeared, however, that despite the penal sanction, some coolies preferred to work under the Coolie Ordinance as giving them greater security and, in particular, exemption from local taxes in native states to which free coolies were liable. The Free Labourer Ordinance of 1911 was therefore amended in 1932 to give free coolies similar protection.

Thanks to the Blaine Amendment and the world depression, the

results attained under the Ordinance of 1930 were greater than had been contemplated, and a further advance in the direction of free labour was possible when the Ordinance of 1931 came up for revision. The Coolie Ordinance of 1936 prescribed an increase in the percentage of free workers; abolished the penal sanction in all contracts of re-engagement; and reduced the maximum length of contracts with a penal sanction from three years to two. As before, the Governor-General might allow special exemption in particular cases on sufficient grounds.

At the latest revision in 1941 the penal sanction was abolished. It had in fact practically disappeared. At the lowest point of the depression it seemed that Chinese labour also would disappear, and there were indications that male Javanese coolies were being replaced by female, on lower wages. In 1939 there was a remarkable increase in the number of Chinese coolies and an equally remarkable decline in the number of female Javanese coolies. Details are given below; the figures show the number of coolies at the end of each year.

Plantation Coolies in the Outer Provinces

Year	Chinese	Javanese		Others	Total
		Male	Female		
A.—Contract Labour					
1930	51,799	221,650	77,762	1,289	352,610
1934*	1,317	9,727	5,231	3	16,278
1937*	13,934	12,418	4,964	2	30,414
1938*	7,752	7,791	3,219	—	18,762
1939	3,634	1,654	1,143	—	6,531
B.—Free Labour					
1930	11,645	68,699	31,647	14,314	126,305
1934*	20,487	142,394	46,611	5,881	215,373
1937*	19,305	185,894	96,627	7,414	309,240
1938*	18,315	185,495	98,074	11,793	313,677
1939	194,349	703,763	18,880	10,413	327,405
Totals					
1930	63,444	290,459	109,409	15,603	478,915
1934*	21,804	152,121	51,842	5,884	231,651
1937*	32,339	198,312	101,591	7,416	339,656
1938*	26,067	193,286	107,293	11,793	332,439
1939	198,083	105,417	20,023	10,413	333,996

* Excludes Manado, Celebes, Moluccas, Bali and Lombok and Timor Residencies in 1934, and South and East Borneo also in 1937 and 1938, as the returns are incomplete. The number excluded was less than ten thousand.

Source: *Statistical Abstract of the Netherlands Indies*, 1940. Table 96 (Batavia, n.d.).

Compulsory Labour

In the Outer Provinces, as in Java, there is a tradition, inherited from native rule, of compulsory labour for the government. During the early years of the present century, when effective administration was being rapidly extended throughout the archipelago, compulsory labour was demanded on a scale that led not infrequently to resentment and unrest. Since then the policy has been to restrict the demand for compulsory services, and by allowing commutation in cash, to pave the way for replacing them with taxes. It has not been possible to abolish them, because almost everywhere the population is sparse and unaccustomed to wage labour, and in the native states, which form 60% of the area of the Outer Provinces, the abolition of compulsory services would encroach on the privileges of the rulers. Measures have been taken, however, to define more closely the work for which compulsory labour may be required, and the people who are liable to render compulsory services. A schedule, periodically revised, shows for each district the number of days a year on which the inhabitants are liable to render service, and rules have been framed for the commutation of such services. An annual return provides information under these various heads.

Compulsory labour is now limited ordinarily to the construction and maintenance of roads, including waterways, bridges and culverts. No compulsory labour is required in the directly governed part of Riouw, in West-Borneo, in the sub-district of Banda, and in Ternate and New Guinea. In Bangka and Billiton the place of compulsory labour has been taken by a poll tax, and in the Minahasa region of Celebes by a traffic tax. In the municipality of Medan in eastern Sumatra compulsory labour has been abolished since 1928. Elsewhere in the area under direct rule, the number of days for which people were liable to labour ranged, in the schedule for 1937, from fifteen to thirty, though in fact only thirteen to twenty-eight were required. The number of people liable for service was 1.42 million, of whom nearly one-quarter bought themselves off for f 1.76 millions. In the native states the number of days for which people were liable for service ranged from twelve to thirty-two, and the number actually demanded was fifteen to twenty-three; the people liable for service totalled 1.37 million, of whom about a quarter bought themselves off for f 1.21 million. It deserves notice that during the depression the number of people who purchased exemption fell off sharply, a fact suggesting that taxation in service has much to commend it in backward areas.

TRADE UNIONS

One notable feature of labour problems in the Netherlands Indies is the growth of trade unionism among the natives. This is a direct consequence of the character of the European section of the population, which includes many who belonged in Europe to democratic political associations and trade unions, and have brought their politics and unionism to the East. The first trade union was that formed by the Rail and Tramway Companies in 1908. This included native members, and before long purely native trade unions came into existence. The formation of a Union of Customs Officials (1911) was followed by Unions of Education Officials (1912), Pawnshop Officials (1912), Opium Officials (1916), and Public Works and Treasury Officials (both in 1917). Under the influence of native political organizations the movement spread to employees in private business, and a Union of Wage-earners and Field-labourers was formed in 1915, and of Factory Workers in 1917. By the end of 1919 twenty-two native unions, with a membership of 77,000, were represented at a conference which led to the formation of a Central Union.

The combination of political and economic aims proved unfortunate. A split on political grounds caused the secession of fourteen unions to form a Revolutionary Central Union. Both European and native unions were prominent in the political and economic unrest which followed on the war of 1914-18, but as trade unionism became more involved in nationalist politics, its rate of progress was retarded. It still went forward, however, though more slowly, and in respect of membership the movement reached its highest point in 1931. By this time the world economic depression was undermining the position of labour. With the general reduction of establishments the number of workers eligible for membership declined, and those who could still find work were more intent on keeping their job than on pressing for better terms. The membership rapidly declined by more than one-half, but towards the end of the depression there were signs of recovery.

The unions of officials concern themselves largely with the scales of salaries. The unions of private employees press for unemployment and old age insurance, and for legislation regarding accidents. Some of the native unions have endeavoured to build up a permanent non-political organization on the ground that the political parties neglect their interests. Where possible, the government assists in the arbitration of disputes between the unions and employers. Strikes

Membership of Trade Unions

	1931		1937	
	a	b	a	b
Federation of Unions of Public Servants	15	11,878	16	5,684
Federation of Unions of Higher Officials	18	1,564	15	1,011
Federation of Roman Catholic Unions	4	917	5	939
Federation of Unions of Native Public Servants	—	—	4	1,044
Federation of European Employees	7	4,582	7	3,128
Federation of Native Unions	12	37,170	20	21,765
Federation of Indonesian Unions	4	5,251	—	—
Federation of Chinese Unions	—	—	5	356
Unaffiliated European Unions	16	6,921	20	10,825
Unaffiliated Native Unions	30	43,061	15	11,995
Total	106	111,344	106	56,747

(a) Number of associations. (b) Membership.

Source: *Indisch Verslag*, 1938, vol. II, p. 234 (Batavia, 1938).

are not infrequent, but the resort to this weapon depends largely on economic conditions. In 1936 there were only five strikes, but in 1937, when conditions were improving and the government was recommending employers to raise the pitch of wages, there were twenty-two strikes, mostly on the ground that wages were too low.

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A publication of the International Labour Office (*Studies and Reports, Series B, No. 29, 'Problems of Industry in the East'*. Geneva, 1938) gives information on labour problems and the nutrition of workers in the Netherlands Indies.

Chapter XI

COMMERCE

Introduction: Exports: Imports: Direction of Foreign Trade: Trade and the Economic Crisis, 1930-37: Regulation of Exports: Regulation of Imports: Regulation of Foreign Trade by Reciprocal Agreements: Bibliographical Note

INTRODUCTION

In its general character the commerce of the Netherlands Indies resembles that of other tropical regions; it is an exchange of raw material for manufactures. Thus it depends on the demand for a comparatively small number of products, and the market position of these products depends on many factors, mostly beyond the control of local merchants and producers. Yet in respect both of imports and exports there are distinctive features, due mainly to the large share of European enterprise in production. Commercial policy has passed through three main stages. From 1830 to 1870, under the Culture System (see p. 84), production for export was conducted by or on behalf of the government; the State was one large business enterprise.

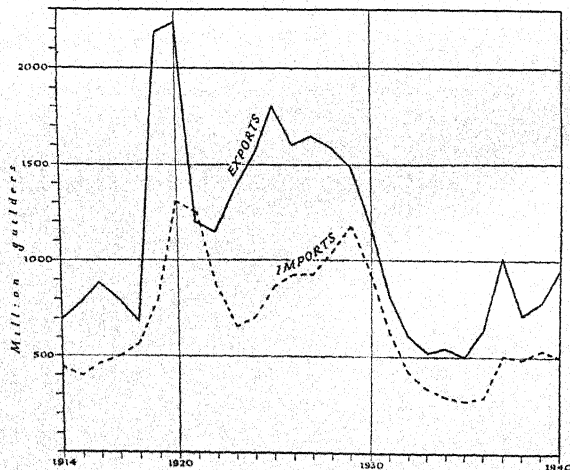


Fig. 59. Exports and imports, 1914-40

Source: *Statistical Abstract of the Netherlands Indies*, 1940, Table 103 (Batavia, n.d.)

From 1870 to 1930 State enterprise gave way to private enterprise with a minimum of interference by the government. Since 1930, official policy has still favoured private enterprise, but in practice State assistance, protection and regulation have been necessary.

The importance of the European factor has reacted in many ways on economic development. It has brought in large investments of capital with a specialized banking system to provide the necessary credit, and it has encouraged the adoption of scientific and mechanical production, and therefore the import of machinery and other goods necessary for production. Further, it has stimulated native production, and thus indirectly, as well as directly, has been chiefly responsible for the growth of trade. Native trade is confined almost exclusively to petty retailing, while wholesale trade remains largely in European hands, with the Chinese as middlemen between Europeans and natives. This is a feature in which the trade of the Netherlands Indies resembles that of tropical dependencies in general, though it is exceptional in the wide range of exports.

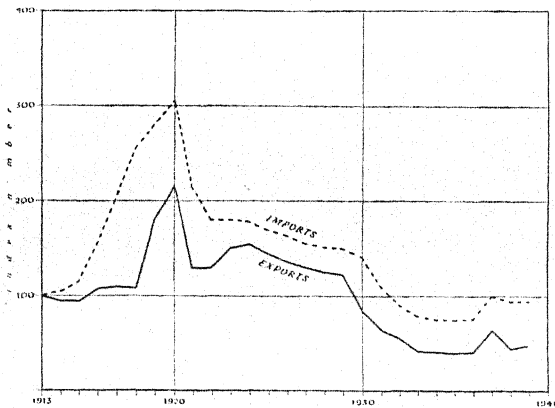


Fig. 60. Prices of exports and imports, 1913-40
(1913=100)

Source: *Statistical Abstract*, 1940, Table 104.

The value of the trade of the Netherlands Indies since 1913 is shown in the table on p. 298 and in Fig. 59. Prices have fluctuated so widely, however, that the uncorrected figures for value are apt to give a misleading impression as to actual progress in terms of the volume of goods. Thus, the value of exports in 1920 was three times as much as in 1913; but, as prices also rose, the figures for value exaggerate differences in the quantity of goods exported. The course of prices since 1913 is shown in Fig. 60.

Value of Trade (f million)

Year	Imports					Exports				
	Merchandise			Bullion and specie	Total	Merchandise			Bullion and specie	Total
	Private	Govt.	Total			Private	Govt.	Total		
1913	437	27	464	29	483	614	57	671	12	683
1925	818	21	839	23	862	1785	17	1802	11	1813
1929	1072	36	1108	57	1165	1446	36	1482	41	1523
1930	855	32	887	34	921	1160	32	1192	31	1223
1937	480	18	498	18	516	991	18	1009	13	1022

Source: *Statistical Abstract*, 1940, Table 103.

Wholesale and Retail Trade.

The foreign trade, both in exports and imports, is largely in European hands, but the Chinese have a considerable share. Among European merchants all the leading nations are represented, and of recent years the Japanese have been making rapid progress. The native share in foreign trade is insignificant. Wholesale trade within the Netherlands Indies rests mainly with the Dutch or Chinese. The latter, in addition to engaging in wholesale trade on their own account, function largely as middlemen between European and native.

Retail trade ranges from that of large departmental stores and specialized shops, little if at all inferior to those of Europe, down to village bazaars and wayside stalls. In the larger inland towns the public bazaars are under the control of the local authority, and many are conspicuous among such institutions in the East for their comparative cleanliness and for the attention paid to hygiene. Except in the largest establishments in the chief towns, few Europeans are engaged in retail trade, and in 1930 out of nearly two thousand 'European' retailers, 60% were Japanese. Many of these were managers of cheap miscellaneous stores, employing native assistants. These stores are notable partly because here natives are engaged in retail trade on modern western lines, and partly because, contrary to oriental tradition, fixed prices are charged.

EXPORTS

The growth of the export trade has been due not merely to a greater output of staple commodities, but, as suggested above, is largely due